Organizational Learning Theory and Districtwide Curriculum Reform: The Role of the Superintendent and Chief Academic Officer

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**ORGANIZATIONAL LEARNING THEORY AND
DISTRICTWIDE CURRICULUM REFORM:
THE ROLE OF THE SUPERINTENDENT AND CHIEF ACADEMIC OFFICER**

Dissertation in Practice

By

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Abstract

This qualitative case study examined the mechanisms employed by a public school Superintendent and Chief Academic Officer to support district wide curriculum reform. Utilizing organizational learning theory as a frame, the study aims to uncover the extent to which the district functions as learning organization. A learning organization can be characterized by a systematic approach to the acquisition and distribution of information to then retrieve and uniformly interpret new knowledge for the organization's future use. Interview data and document analyses revealed strong evidence of organizational learning mechanisms employed by the Superintendent and Chief Academic Officer. Specifically, strategies for information acquisition and distribution were highly utilized, as well as structures for accountability including supervision, coaching models and a focus on data use. These district administrators delegated roles and meeting structures to support curricula adaptation, including heavy reliance on the instructional leadership of coaches and directors. With the goal of improving student outcomes via curricula reform, such structures facilitated adaptation and engagement in new learning by various members of the school district.

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Dedication

This dissertation is dedicated to my Dad, Vincent Finocchio. Although you are now in heaven, I will forever hear your voice and feel your spirit, which gives me the strength and guidance to be the best version of self. Thank you Dad, for teaching me hard work, perseverance, and resiliency. I know you will be with me on graduation day, smiling and standing proud. I love and miss you.

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Chapter 1[1]

Introduction

Educational leaders are faced with a complex mix of competing interests, shifting demographics, and comprehensive reform demands (NCEE, 1983; NCLB, 2001; RTTT, 2009). Since the publication of A Nation at Risk (1983), American public schools have achieved mixed results in their pursuit of substantive and sustainable change (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Duncan & Murnane, 2014; Higgins, 2011; Payne, 2013). Recent interdisciplinary research has established the efficacy of systems and structures that support organizational learning and suggests that school leaders who establish learning organizations may position their schools and districts to more effectively manage change and turbulence in public education (Koliba & Gajda, 2009; Knapp, Copland, Honig, Plecki, & Portin, 2010; Schlechty, 2009; Senge, 1990; Spillane, J. Parise, L. & Sherer, J., 2011; Waters & Marzano, 2009).

Supporting complex reform agendas and adapting to new conditions and demands requires highly skilled learning organizations (Argyris & Schon, 1976; Collinson & Cook, 2007; Elmore, 2006; Fullan & Hargreaves, 2012; Honig, 2008; O'Day, 2009; Shilling, 2013). When applied in the public school setting, organizational learning theory may support the development of schools and districts as successful learning organizations (Bryk, Gomez, & Grunow, 2011; Bryk, Camburn, & Louis, 1999; Bryk & Schneider, 2002; Collinson & Cook, 2007; Leithwood & Louis, 2000). While there is clarity around the need to build the organizational learning capacity of public school systems, doing so

[1] This chapter was jointly written by the authors listed and reflects the team approach of this project: Andrew M. Berrios, Tracy R. Curley, Marice Edourd-Vincent, Bobbie F. Finocchio, and Ian Kelly

successfully and sustainably remains a tenacious problem of practice (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Duncan & Murnane, 2014; Higgins, Ishimaru, Holcombe, & Fowler, 2012; Payne, 2013).

This study explored organizational learning in the public school context and attempted to gain valuable insights into how school and district leaders leverage organizational learning theory to implement and support strategic curriculum reforms. It is our hope that this study will (a) add to and complement the existing research base on the use of organizational learning theory to enhance school performance and (b) provide school and district leaders with specific guidance on the application of organizational learning theory in practice. We believe that this study will support leaders by (a) building their understanding of organizational learning theory and organizational learning mechanisms, (b) providing insights into how information and knowledge moves within a district and where problems with organizational learning can occur, and (c) providing guidance in using organizational learning theory to support reform agendas at the school and district level.

Research Question

How do district and school leaders use organizational learning theory to implement and support curriculum reform?

Literature Review

Changing Instructional Practice

Raising academic achievement for all students remains a high priority for legislators, policy makers, and educators (NCEE, 1983; NCLB, 2001; RTTT, 2009). In addition to legislative demands, the labor market continues to emphasize the need for

specific skills and competencies that support success in today's knowledge economy (Crawford & Irving, 2009; Casner-Lotto & Benner, 2006; Hepworth & Smith, 2008; Lloyd, 2010). Adjusting curriculum, instruction, and assessment practices to reflect these demands requires fundamental changes to how local education agencies approach teaching and learning. Specifically, educational leaders have struggled to implement substantive and sustainable curricular reforms that have a lasting impact on teaching and learning (Burney & Elmore, 1997; Duncan & Murnane, 2014; O'Day & Quick, 2009; Payne, 2013; Shilling, 2013).

Successful school reform and improvement rely heavily on the knowledge and capacity of professionals at all levels of school district operations (Bryk, 2010; City, Elmore, Fiarman & Teitel, 2009; Elmore, 2006; Kruse, 2003). As such, building the knowledge and capacity of professionals at all levels of a district's organizational hierarchy is an instrumental endeavor for public education systems (Fullan, 1992). All school systems engage in organizational learning, the question central to this study focuses on (a) what types of mechanisms are in place to support professional learning and (b) the extent to which the efficacy of those mechanisms can be determined by examining the alignment of and agreement between professional perceptions of district curriculum reform priorities. Organizational learning theory (Argyris & Schon, 1978) and organizational learning mechanisms (Popper & Lipshitz, 1998; Schechter & Atarchi, 2014) provide a structured framework through which the district's approach to implementing and supporting curriculum reform was analyzed.

The following pages provide an overview of both the theoretical literature and empirical research associated with organizational learning theory (OLT) and

organizational learning mechanisms (OLMs). Building a fundamental understanding of OLT clarified our research focus and highlighted the conceptual framework in which we situated our research methodology. In addition, this review of the literature provided critical information about what constitutes organizational learning and the unique characteristics associated with this theoretical framework.

The review first addresses Understanding by Design. While this curriculum design framework was not central to the study, it was one of the primary ongoing curriculum reform initiatives in the Belvedere Public Schools at the time of this study. As such, this reform represented a concept and vernacular familiar to participants in the study. This familiarity was key to the study as it provided a medium through which the research team could discuss and study the unfamiliar concepts embedded in the OLT and OLMs theoretical framework.

The review then moves into a discussion of OLT in which embedded concepts including theory of action, theory in use, mental maps, and single/double loop learning are addressed. The review briefly address differences between individual learning and organizational learning before moving into a review of literature and research associated with the secondary conceptual framework for this study, organizational learning mechanisms (OLMs).

Curriculum Reform: Understanding by Design

The district selected for this research study was engaged in a focused, inter-district curriculum reform effort that began in 2012. The district and its partners selected and implemented an approach to curriculum planning known as Understanding by Design

(Wiggins & McTighe, 1998). This approach to curriculum planning relies on a three-stage process that engages professionals in what is known as a backward design method.

The first phase asks professionals to identify desired results in terms of learning outcomes for students. Backward design focuses educational professionals on broad understandings and essential questions before considering how to teach a concept or skill. Once identified, the second stage of the backward design process requires professionals to determine acceptable evidence. This stage of the process answers the question, "How will we know students have learned and do they demonstrate understanding of the established learning outcomes?" The third and final stage of the backward design process engages educators in planning learning experiences and instruction based upon the desired learning targets established in the second phase of backward design.

Organizational Learning

Organizational learning can be defined as a change in organizational knowledge or behavior that is a result of experience over time (Argyris & Schon, 1978; Argote & Miron-Spektor, 2011; Fiol, 1994; Fiol & Lyles, 1985; Levitt & March, 1988; Schulz, 2005). Learning within an organization is influenced by socio-cultural factors (Bransford, Brown, & Cocking, 2006; Bruning, Schraw, & Norby, 2011; Vygotsky, 1978) and is most effective when professionals are given the opportunity to learn from one another within the context of their work (Brown & Duguid, 1991; Elmore, 2006; Hargreaves & Shirley, 2009). This broad definition of organizational learning provided a framework through which we explore concepts embedded in organizational learning theory.

Organizational Learning Theory

March and Simon (1958) examined the theory of formal agencies in their work, *Organizations*. At the time, the concept of organizational learning was relatively undefined and lacked a substantive theoretical base. March and Simon (1958) captured this problem succinctly, “Much of what we know or believe about organizations is distilled from common sense and from the practical experience of executives. The great bulk of this wisdom has never been subjected to the rigorous scrutiny of the scientific method” (p.24). March and Simon’s (1958) early work set the stage for the development of organizational learning theory (OLT) and identified the need for future research into how organizations (a) engage individuals, (b) strategically plan for growth and learning, and (c) develop personnel and, as a result, the collective organization.

Building on the work of Marhc and Simon, Argyris & Schon (1978) further published *Organizational Learning: A Theory of Action Perspective.* This seminal work provided a conceptual frame for researchers and practitioners to study and analyze learning within the context of organizations. In this work, the authors described the fundamental concepts that compose organizational learning theory: task systems, theory of action, theory in use, mental models, single-loop learning, and double-loop learning. These concepts clarify the experiences of both the organization and individual within the learning process, specifically, the interaction between the organization’s intended outcomes and how those at the individual level are educated or learn in the process of pursuing those intended outcomes.

Theory of action. Collinson and Cook (2007) describe an organization as "a collective that forms for a specific purpose that is beyond the reach of a single individual" (p. 8). The specific purpose that Collinson and Cook referred to is almost always paired

with actions that the organization believes will result in attaining that purpose. This relationship between purpose and action is what Argyris and Schon (1978) referred to as theory of action (ToA). The causal relationships embedded in a ToA reflect the norms, strategies, and assumptions that organizations rely upon to pursue their specific purposes and goals (Argyris & Schon, 1978; DuFour & Eaker, 1998; Fullan, 2001; Fullan, 2007).

No Child Left Behind (2001) provides a salient case illustrating theory of action. NCLB's desired outcomes included ensuring that all students had access to (a) highly qualified teachers, (b) a standards based curriculum, and (c) an equal opportunity to achieve at high levels. NCLB articulated a number of actions to achieve these goals. These included but were not limited to (a) more stringent requirements and monitoring of teacher licensing practices, (b) increased standardized testing, and (c) high-stakes accountability mechanisms to monitor the progress of schools. The causal relationships drawn between the desired outcomes for students and the regulatory mechanisms designed to achieve them provide insight into the norms, values, and assumptions of the educational reform context at the time the legislation was written.

Spillane, Parise, and Sherer (2011) conducted a case study that provides valuable insight into the theory of action concept. Their work focused on school leaders' use of organizational routines to couple government regulations and instructional practices at the classroom level. Spillane and colleagues built on the work of Feldman and Pentland (2003), utilizing organizational routines as a portion of the theoretical framework for their study. In their discussion of these routines they describe the ostensive and performative aspects of organizational routines. Paralleling the work of Argyris & Schon (1978), the ostensive aspect of organizational routines refers to the ideal or schematic

form of a routine (ToA), while the performative aspect refers to the actual enactment of the ToA. Feldman and Pentland (2003) state this idea succinctly, "The ostensive aspect of the routine is the idea; the performative, the enactment" (p. 101). Argyris and Schon (1978) discussed how organizations enact ToA through task systems. Task systems provide the second portion of the conceptual framework for this study.

Task systems. Task systems are shaped by an organization's theory of action and are "a design for work and a division of labor" (Argyris & Schon, 1978, p.14). In school settings, task systems can be found at all levels of the organization with a broad range in complexity. Task systems manifest in the processes and procedures that teachers use to transition children from math to lunch and the broad strategic planning processes executed by central office administrators to formulate multi-year improvement plans for an entire district (Halverson, 2003; Spillane, Parise, & Sherer, 2011; Spillane & Thompson, 1997). The notion that task systems are shaped by and reflect the district's most fundamental norms, strategies, and assumptions (the districts ToA) is an essential understanding when considering an analysis of district practices through the organizational learning framework. The bridge between the idea and the enactment is spanned by how members within the organization perceive the ToA and the extent to which they understand the ToA. The individual's perception, understanding, and enactment of ToA embody two additional concepts embedded in Argyris and Schon's (1978) organizational learning theory, theory in use and mental models.

Theory in use and mental models. Theories of action are abstract concepts. As stated earlier, they articulate a causal relationship between the desired goals of an organization and the behaviors that the organization believes necessary to attain those

goals. In contrast, theory in use represents the observable behaviors of the organization or individuals within the organization (Argyris & Schon,1978). Put another way, theory in use is what an observer can see the organization or individuals within the organization doing. It is the observable behavior that sets theory in use apart from the norms, strategies, and assumptions that compose an organization's theory of action.

What the organization is actually doing is a function of individual behavior and, within the context of organizational learning, individual behavior is driven by individual perceptions of the organizations theory of action. These individual perceptions of what the organization wants and how they plan on getting it are formed through the individuals experiences with and learning from other individuals within the organization and with the organization itself. These interpretations are knows as mental models.

Through direct experiences and interactions with the organization over time, individuals construct, continuously review, and revise mental models that represent the organization's theory of action and task systems (Argyris, 1976; Argyris & Schon, 1978; Hedberg, 1981). The development of mental models is heavily influenced by the interactions between the individual and the organization. These mental representations of ToA and task systems help the individual understand and, ultimately, drive the execution of their perceived responsibilities within the organization. Mental models represent another critical element in the conceptual framework that frames the current study.

District and school leaders design task systems intended to implement the working theory of action. Teachers and other education professionals work within those task systems and, over time, accumulate experiences that shape how they perceive and understand the district's theory of action. These perceptions and understandings are the

mental models that individuals construct and, consequently, use to guide their current and future work (Mohammed & Dumville, 2001). It is the actions of individuals that are the observable behavior known as theory in use.

Theory of action, task systems, theory in use, and mental models are key concepts that frame and, in the following pages, distinguish between two distinct types of learning within an organization; single-loop learning and double-loop learning (Argyris & Schon, 1978). Single-loop learning refers to changes in behavior that maintain the current theory of action. Double-loop learning refers to changes in behavior that redefine the norms, assumptions, and strategies that constitute the organization's theory of action. Both types of learning rely on a phenomenon known as error detection.

Error detection. The concept of error detection is essential to understanding learning within the context of OLT (Shaw & Perkins, 1992). Errors refer to a perceived incongruence between observable behavior and an individual's expectation of behavior relative to their mental models of the organizational theory of action and task systems. In simple terms, an error occurs when an individual acts in a way or observes others acting in ways that are incongruent with their current perception (mental models) of the organizational theory of action and supporting task systems. It is here that the true power of mental models becomes clear. Given that error detection is a function of an individual's observation of behavior that is perceived to be incongruent with the organizational theory of action, the accuracy of and the extent to which individual mental models reflect the ToA articulated by the organization determines what is and is not considered an error.

An individual who holds accurate mental models of the organizational theory of action and task systems will potentially detect true errors that present opportunities for organizational learning. An individual who holds inaccurate mental models of the organizational theory of action and task systems may (a) fail to recognize errors or (b) interpret behaviors that are consistent with the organizational ToA as errors. In the case of inaccurate mental models, opportunities for individual and organizational learning are stifled or missed all together. In some instances these situations may result in learning that is counterproductive and harmful to the organization. As we can see, mental models, accurate or not, play a significant role in whether and how organizational learning will occur (Argyris, 1976; Argyris & Schon, 1978).

Single-loop and double loop learning. The process of single and double loop learning begins with error detection. When an error is detected the individual or the organization seeks to correct the perceived problem. The manner in which the perceived problem is corrected determines whether the organization is engaged in single loop learning or double loop learning. In a single-loop learning scenario, the error correction seeks to maintain the status quo and preserve the current theory of action (Argyris, 1976; Argyris & Schon, 1978). Double loop learning, on the other hand, refers to error correction on the part of individuals or the organization as a whole that initiates a fundamental shift in the norms, strategies and assumptions of the organization (Argyris, 1976; Argyris & Schon, 1978). In this situation, the error or problem is so incongruent with the current theory of action that it cannot be resolved through the minor behavioral adjustments of single loop learning. In the case of double loop learning, the organization

must look critically at its theory of action and redefine that theory to better match current demands.

The work of March and Simon (1958) and Argyris and Schon (1978) provided the foundational theoretical and conceptual frameworks for the current study. Theory of action, task systems, theory in use, and mental maps/images gave shape and direction to the development of data collection protocols and the subsequent analysis of organizational learning in service of the district's curriculum reform efforts. The research and literature in the decades following the work of March and Simon (1958) and Argyris and Schon (1978) defined the remaining elements of the theoretical and conceptual framework for the research team's investigation of organizational learning and curriculum reform. The following pages provide a brief treatment of this literature and research as well as an in depth review of organizational learning mechanisms.

Organizational Learning Mechanisms

During the two decades following Argyris and Schon's (1978) work research continued to explore and define organizational learning theory (Cook & Yanow, 1993; Duncan & Weiss, 1979; Fiol & Lyles, 1985; Herritt, Levinthal & March, 1985; Huber, 1991; Klimecki & Lassleben, 1998; Levinthal & March, 1981; Levitt & March, 1988; Nonaka, 1994; Senge, 1990; Walsh & Ungson, 1991; Weick, 1991; Weick & Roberts, 1993). This body of work provided further definition for and understanding of OLT. As the field developed and so to did a significant theoretical division within the research community.

The central problem and debate involved (a) the fundamental relationship between individual learning and organizational learning and (b) whether or not

organizations were capable of learning in the same way that humans learn. Popper and Lipshitz (1998) explored these issues through an exhaustive review of relevant literature and contributed a viable theoretical bridge between the various perspectives on these issues. The power of their work was based on (a) the identification and articulation of three divergent theoretical positions on the debate and, most relevant to the current study, (b) the articulation of organizational learning mechanisms as a concrete lens through which researchers could study organizational learning while circumventing the quagmire of individual vs. organizational learning.

Popper and Lipshitz (1998) articulated three positions taken by the theoretical community on the question of how individual and organizational learning are or are not related and congruent. The first position answered the question with a qualified yes. This theoretical position held that organizations are able to learn like human beings. The second position answered the question with an implied yes. Scholars here held that organizations were able to learn but that organizational learning was an extension of individual learning. The third and final position answered the question with a firm no. This theoretical position held that organizations do not possess systems and structures that parallel the biological cognitive networks involved in human learning and, therefore, organizations cannot learn as individuals learn.

While these theoretical positions provided structure and insight into the debate at the time, the theoretical bridge that Popper and Lipshitz (1998) offered to span this divide in the research community was the major contribution of their work. Building on the work of Cook and Yanow (1993), Popper and Lipshitz proposed that organizational learning mechanisms provide a concrete framework through which researchers could

study the "structural and procedural arrangements" (p.167) that result in learning. While the research and theoretical community could not agree on the questions surrounding the relationship between individual and organizational learning, the notion that all organizations engage in strategic activity to achieve goals is universally accepted and provided a path forward in studying organizational learning.

Popper and Lipshitz (1998) identify organizational learning mechanisms (OLMs) as a way to draw attention to the concrete, observable systems within an organization that promote individual and group learning (Popper & Lipshitz, 1998; Popper & Lipshitz, 2000). OLMs are institutionalized procedures and practices that organizations use to collect, analyze, store, disseminate, and use new information in service of organizational goals (Ellis, Margalit, & Segev, 2012; Ellis & Shpielberg, 2003; Popper & Lipshitz 1998, 2000; Schechter, 2008; Schechter & Asher, 2012; Schechter & Quadach, 2012; Schechter & Atarchi, 2014). Schechter and Feldman (2010) explain that OLMs function across various settings within organizations when individual members share and analyze knowledge. When organizational learning mechanisms effectively increase an individual's knowledge, the individual's newly acquired knowledge adds to the collective learning of the organization, thus, supporting the concept that OLM's support organizational learning.

Organizational learning mechanisms are closely tied to theory of action, task systems, theory in use, and mental maps (Argyris & Schon, 1978). OLMs are formal and informal task systems that organizations use to promote individual and organizational learning in service of the theory of action. OLMs can promote single or double loop learning by leveraging the errors that organizations and individuals detect based on

comparisons between theory in use and mental models. OLMs are composed of five distinct learning processes (Schechter & Atarchi, 2014). These processes are explored further in the following pages.

Organizational learning mechanisms: Five processes for organizational learning. Research exploring organizational learning mechanisms (OLMs) identifies five distinct but interrelated processes embedded on OLMs. These include organizational memory, information acquisition, information distribution, information retrieval, and information interpretation (Schechter & Quadach, 2013; Schechter & Atarchi, 2014). Building upon organizational learning research, Popper and Lipshitz (1998) identified organizational learning mechanisms as a way to draw attention to the concrete, observable systems within an organization that promote individual and group learning (p.170)**.** More specifically, these mechanisms represent the systems and structures that organizations use to acquire, retain, and transfer knowledge (Fiol & Lyles, 1985; Huber, 1991; March, 1991). Table 1.1 provides detailed definitions of each embedded learning process.

Table 1.1

*Elements of organizational learning mechanisms**

Attribute	Definition
Organizational Memory	The process and means by which organizational experiences are stored and coded into organizational memory for future use.
Information Acquisition	The process of obtaining knowledge.
Information Distribution	The process of sharing information that leads to understanding.

Information Retrieval	Organizational members draw on the encoded information to guide their decisions and actions.
Information Interpretation	A socio-cognitive process that ties meaning to the distributed information (Schechter & Quadach, 2012).

*Note: Adapted from "Toward an Organizational Model of Change in Elementary Schools: The Contribution of Organizational Learning Mechanisms," by Schechter, C. & Qadach, M., 2012, *Educational Administration Quarterly*, *48*

Organizational memory. Organizational memory refers to stored information that an organization accumulates through experience over time (Argote & Ingram, 2000; Argote & Miron-Spektor, 2011; Arrow, McGrath, & Berdahl, 2000; Kruse, 2003, Walsh & Ungson, 1991). At the individual level, knowledge is stored in the brain using a series of complex cognitive mechanisms for rehearsal and retrieval. At the organizational level, the storage of information is distributed across members, tools, and tasks (McGrath & Argote, 2002) and stored within individuals, culture, transformations, structures, and the ecology of the organization (Walsh & Ungson, 1991). In developing a theoretical framework for this study, it was critical to consider (a) where organizational information was stored and (b) the types of information stored. Schechter (2015) delineates between hard information and soft information, "Organizational memory includes hard data (rules and measurable facts) as well as soft information (e.g., tacit knowledge, expertise, and details about strategic decisions)" (p. 6).

A curriculum review committee in Belvedere, which may consist of district and building level leaders and teachers, serves as an illustrative example of organizational memory. As this committee works to solve problems of practice, they accumulate experience and knowledge and, therefore, learn. The knowledge generated through the committee's work is stored within the members of the committee and the products of

their work (McGrath & Argote, 2002). The soft information (Schechter, 2015) stored in organizational memory might include the operational procedures and routines of the committee, the historical development of the committee, etc. The hard information (Schechter, 2015) might include meeting agendas, meeting minutes, curriculum maps, etc.

Information acquisition. Information acquisition involves gaining new information and knowledge through (a) the knowledge and expertise of those currently in the organization, (b) direct experience over time, (c) drawing upon the knowledge of individuals outside of the organization, (d) hiring new staff with specialized knowledge and skills, and/or (e) observing and collecting information from other organizations (Huber, 1991; Schechter, 2015). Through these different approaches to acquiring new information, organizations engage in a phenomenon referred to as search (Huber, 1991). As organizations work to actualize the articulated theory of action, they may, depending on their circumstances and needs, engage in a search for new information. Search can involve (a) scanning the organization for new knowledge, (b) a focused search to identify alternative plans and paths, and (c) organizational performance monitoring.

Information distribution. Once information is acquired, organizations and individuals engage in both direct and indirect distribution of information. Direct distribution of information can happen through written communications, meetings, memos, policies, etc. Indirect distribution can happen through informal conversations between individuals within the organization or the modeling and behavior that individuals enact and observe through their work within the organization (Burch & Spillane, 2003; Schechter, 2015).

Information interpretation. The last domain of the learning cycle, information interpretation, involves learning through sense making (Weick, 1995; Coburn & Talbert, 2006). Individuals and groups hold preexisting beliefs that influence how information is interpreted, yet increased learning transpires when multiple interpretations are made and shared within the organization. These interpretations can range from large group meetings and trainings in organizations to physical pieces of paper such as reports. It is the responsibility of central office leaders to ensure that the new information is properly understood.

Information retrieval. The ways in which organizations make decisions and take action depends, to some extent, on how information is retrieved (Walsh & Ungson, 1991; Weick, 1979). Like other elements of organizational learning mechanisms, retrieval is related to and influenced by all of the other elements embedded in OLMs. Within the context of OLMs, retrieval is heavily influenced by (a) information interpretation and (b) how and where information is stored in organizational memory.

The interpretation of organizational information influences the relative accuracy and quality of information that is drawn upon through retrieval to inform decisions. As individuals take in information, it is interpreted through their mental models of the organization (Argyris & Schon, 1978). These interpretations, as seen through these lens of error detection, vary in accuracy and quality based upon individual mental models. This variation can lead to broad interpretations of the organizational information that is ultimately retrieved and, as a result, can have less than positive influences on organizational decision-making.

The repositories and formats of organizational information also hold significant roles in the retrieval of organizational information. As Walsh and Ungson (1991) suggested, information is stored in locations that include individuals, culture, transformations, ecology, and structures. Schechter (2015) suggests two primary format domains for information storage, hard information and soft information. Hard information is tangible and can be seen (i.e. processes, policies, documents, etc.), soft information is often intangible and ambiguous (i.e. specialized expertise of individuals, social dynamics, etc.). The locations and formats of stored organizational information influence retrieval an that (a) the locations my or may not be known to those seeking information and (b) the quality and clarity of information may vary widely based upon individual interpretations of information.

Organizational learning mechanisms (OLMs) are "institutionalized structural and procedural arrangements that allow organizations to systematically collect, analyze, store, disseminate, and use information relevant to the performance of the organization and its members" (Popper & Lipshitz, 1998, p. 170). These OLMs encapsulate five distinct learning processes (Schechter, 2015). These processes are information acquisition, information interpretation, information distribution, organizational memory, and information retrieval. Taken together these five learning processes represent the systems and structures that district and school leaders may use to implement curriculum reform.

Organizational Learning in Practice

Professional learning communities (PLCs) represent a concrete application of organizational learning theory and mechanisms and can provide clarity on the interrelated concepts embedded in the OLT and OLM literature (DuFour & Eaker, 1998; Stoll &

Louis, 2007). PLCs can be defined as a team of professionals who (a) share a vision and goals for their work, (b) seek collaborative solutions to problems of practice, (c) support ongoing professional learning, and (d) rely on performance data and other sources of information to make informed decisions (DuFour & Eaker, 1998; Levine & Shapiro, 2004). The defining characteristics of PLCS provide a meaningful context for the concepts embedded in organizational learning theory and mechanisms.

The notion that PLCs are built on shared vision and goals for the future (DuFour & Eaker, 1998) conceptually reflects the concept of organizational theory of action. The shared vision and goals of a PLC articulates the causal relationship that the group draws between desired outcomes and the behaviors it believes necessary to achieve them. Seeking collaborative solutions to problems of practice reflects the concepts of error detection (the PLC perceives a problem relating to their practice), information retrieval and acquisition (the team seeks information and resources to solve the problem), and, depending on the outcome, single or double loop learning (the PLC solves the problem of practice and, as a result, learns). The solutions to problems of practice generate knowledge that is stored in organizational memory as either hard information (lesson plans, curriculum materials, etc.) or soft information (new teaching practices, new understandings about learning, etc.).

Organizational learning and curriculum reform. School systems that leverage organizational learning theory (OLT) and organizational learning mechanisms (OLMs) may be better equipped to manage rapid changes in educational reform efforts and achieve successful outcomes for students (Collinson & Cook, 2007; Schechter & Atarchi, 2014). Schechter and Feldman (2010) suggest with the use of OLMs across settings,

individual members can more effectively gain and share information that is central to individual and organizational learning. Given the growing body of research connecting school success and organizational learning, it is critical to continue exploring how organizational learning theory is understood and implemented in school settings.

The current study investigated how district and school leaders thought about and applied organizational learning theory to implement and support ongoing curriculum reforms. This research looked closely at how district and school leaders constructed theories of action and how those theories of action were brought to life via organizational learning mechanisms. The study analyzed the mental maps of professionals throughout the district and the extent to which those mental maps agreed or did not agree with the district's theory of action. This project adds to the growing body of work focusing on organizational learning in school districts. In addition, this work makes specific contributions to the body of literature providing practicing school leaders with direct guidance in the application of organizational learning theory in the school setting. In the next chapter we detail the methodology employed to carry out this study.

Chapter 2[2]

Research Design

This study aimed to examine how district and school leaders use organizational learning theory (OLT) to implement and support ongoing curriculum reform. For the purpose of this research, we define organizational learning as a change in organizational knowledge or behavior that is a result of accumulated experience (Argote & Miron-Spektor, 2011; Argyris & Schon, 1978; Fiol & Lyles, 1985; Levitt & March, 1988; Schulz, 2005). Organizational learning mechanisms (OLMs) are "the concrete, observable organizational systems operated by individual organization members" that promote individual and group learning (Popper & Lipshitz, 1998, p. 170). OLMs provide the context in which individuals gain experience and build shared knowledge about and understanding of the organization's priorities and goals (Collinson & Cook, 2007; Schechter & Atarchi, 2014). Given our team's desire to gain insight into how school and district leaders used OLT to implement and support curriculum reforms, a qualitative case study methodology was selected and shaped to execute that inquiry (Creswell, 2008; Yin, 2009).

This study utilized a qualitative single case study design. Yin (2009) states, "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 18). In this case, the OLMs that were deployed by the district represented the phenomenon that Yin (2009) was referring to while the individual professionals represent the context in which OLMs were situated. A case study design

[2] This chapter was jointly written by the authors listed and reflects the team approach of this project: Andrew M. Berrios, Tracy R. Curley, Marice Edourd-Vincent, Bobbie F. Finocchio, and Ian Kelly

allowed the team to (a) study the experiences of individuals from across the district's organizational hierarchy and (b) leverage an analysis of the collective experiences of individuals to make inferences about the presence and function of OLMs in the Belvedere Schools.

To gain these insights, the research team utilized archival document review and semi-structured in person interviews to collect data and triangulate information (Maxwell, 2013; Merriam, 2009; Yin, 2009). Data collection instruments and processes were designed to examine district practices through the OLT and OLM theoretical frameworks that give shape to this study. The following pages provide a detailed description of our collective methodology.

Site Selection

Selection of a research site that would allow for an effective analysis of OLT and OLMs within the context of curriculum reform required careful consideration on the part of the research team. To support the site selection process, the team employed criterion-based sampling (Creswell, 2008; LeCompte & Preissle, 1993; Maxwell, 2013; Miles & Huberman, 1994; Patton, 2002). Two criteria were identified that would qualify districts as potential research sites. These criteria were:

1. The district must, through review of strategic planning documents, evidence the implementation of curriculum reforms for at least three continuous years.
2. The district must serve between 5,000 - 10,000 students.

The team believed that the duration of the curriculum reform was important in that district's that had committed less than three consecutive years may not provide the

level of insight necessary for a thorough analysis of OLT and OLMs. The team considered the size of the district to be a relevant selection criteria based on the logic that a smaller district may conflate the results due to a lack of organizational complexity. On the other end of the spectrum, the team believed that the organizational complexity of districts serving populations greater than 10,000 students may be too broad to study effectively and, therefore, compromise the efficacy and quality of analysis.

Participant Selection

The research team's desire to gain a broad and rich understanding of OLT and OLMs within the context of Belvedere's ongoing curriculum reform efforts required careful consideration of participant selection. Drawing on qualitative case study literature, the team found Patton's (2002) notion of purposeful sampling compelling. Patton suggested, "the logic and power of purposeful sampling lies in selecting information rich cases for study in depth. Information rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry…" (p. 230). In considering those participants from whom we might learn the most, the team purposefully selected the superintendent (n=1), central office administrators (n=3), principals (n=4), instructional coaches (n=4), and classroom teachers (n=6). This pool of eighteen participants represented the district's organizational hierarchy and provided a sample sufficient to make inferences and generalizations based on our data. While there is little clarity on the issue of appropriate or standards for sample sizes in qualitative research, the team sought to balance research goals and purposes, drawing a representative perspective from the district, and the time and resources available for the project (Mason, 2010; Patton, 2002).

Instrumentation

The research team developed in-person interview and document review protocols that were tuned to reflect key concepts embedded in the theoretical frameworks of organizational learning theory and organizational learning mechanisms. The context and associated vernacular of the ongoing curriculum reform provided the language in which we framed our questions and embedded concepts from the theoretical framework. Key concepts situated within interview questions about the curriculum reform included Schechter & Atarchi's (2014) five elements of organizational learning mechanisms (information acquisition, information distribution, information interpretation, organizational memory, and information retrieval) and select elements (theory of action, mental maps, single loop learning, double loop learning, and theory in use) from the work of Argyris & Schon (1978).

Interview protocols. The team employed semi-structured interviews to explore the district's use of organizational learning mechanisms to support ongoing curriculum reform efforts (Creswell, 2008; Merriam, 2009). Semi-structured interviews balanced the need for systematic data collection while providing flexibility to pursue topics that surfaced through dialog with participants (Mason, 2010; Yin, 2009). In order to develop the protocols, the research team used a multi-step process to ensure that questions addressed the theoretical framework, were conceptually clear and accessible to participants and met the data collection requirements for all five individual studies (Maxwell, 2013; Merriam, 2009; Patton, 2002; Weiss, 1995).

Development of protocols began with a standard bank of interview questions adapted from the work of Schechter and Atarchi (2014). This starting point ensured that

initial draft questions were tied closely to the theoretical frameworks guiding the study. From here, the team worked to frame the questions in the vernacular of Belvedere's ongoing curriculum reform efforts. Taking this step ensured that participants would understand the questions and, therefore, provide the rich data necessary to conduct our analysis of OLT and OLMs within the district. Once questions were reformulated to reflect the district's curriculum reforms, interview protocols were subjected to a number of reliability and validity checks.

Cognitive interviews were conducted to assess the construct validity of the questions (Hill, Thompson, & Williams, 1997; Merriam, 2009). During cognitive interviews, participants were asked to review interview questions and described to the interviewer what they believed the questions were asking them. As a result, the research team gained important feedback concerning the clarity and specificity of interview questions. Interview protocols were revised using the data gathered through cognitive interviews and were then subjected to formal pilot interviews. During pilot interviews, participants engaged in a mock interview scenario. All questions were asked and responses recorded. Participant responses were reviewed by the research team to assess the extent to which the questions elicited the data necessary to examine organizational learning theory and mechanisms. Here, again, interview protocols were revised and finalized based on data gathered through the pilot interview process. Final interview protocols can be found in Appendices A through D.

Document review. Review and analysis of documents provide a rich source of data and information in qualitative research projects (Creswell, 2008; Merriam, 2009; Patton, 2002). Document review and analysis took place prior to and during fieldwork.

In preparing for fieldwork, document review protocols served as a means to develop a meaningful context for the ongoing curriculum reform efforts of the district. This approach provided important background information that supported data collection throughout the project. In addition to building context and supporting the research team's orientation to the subject, the initial archival document review served "as a stimulus for paths of inquiry that can be pursued only through direct observation and interviewing" (Patton, 2002, p. 294). During fieldwork, additional documents and work products were acquired for review during interviews. These documents were reviewed in light of our ongoing data collection and served to confirm or disconfirm data gathered during in person interviews (Merriam 2009; Patton, 2002).

Procurement and selection are two considerations that the team considered in developing a document review protocol (Berger, 2014; Creswell, 2008; Patton, 2002; Merriam, 2009). Initial documents selected for review consisted of publicly available materials accessed via the district's website. These artifacts included district improvement plans, district strategic plans, district professional development plans, school improvement plans, and curriculum documents relative to the ongoing reform effort. Access to organizational documents not publicly available and relevant to research were requested and gathered during in person interviews (Patton, 2002) by asking participants if they would be willing to provide any documents that they believed to be relevant to the ongoing curriculum reform efforts of the district. These documents included teacher-generated assessments, teacher generated lesson plans, professional development materials, internal communications, etc.

Authenticity of documents (Merriam, 2009) and confidentiality of documents (Patton, 2002) were also important considerations in developing the document review protocol. Merriam (2009) suggests that researchers consider the origin, purpose, author, and the context in which the document was produced. The team integrated authenticity checks into the document review protocol by having no fewer than two members examining the same documents. Confidentiality was also addressed through the document review protocol. When considering requirements for confidentiality, the research team relied on the work of Patton (2002). The identities of participants and the research site were protected by ensuring that private documents were not cited directly in the final report and by redacting all identifying information in documents maintained in hard copy by the research team.

Confidentiality and Consent

Informed consent and participant confidentiality were essential to both the well being of participants and the validity of data (Butin, 2010; Merriam, 2009). In the current study, these ethical issues were of central importance due to the inclusion of supervisors and subordinates in the participant pool. Protection of subordinates was critical because participants provided information that supervisors may perceive as critical or objectionable. Recognizing that participants who had any cause to be concerned about being identified or suffering adverse consequences as a result of participating in the study would likely withhold information or refrain from being open and honest in their responses, we sought informed consent from all participants, ensuring their confidential participation. Prior to data collection and in adherence with Institutional Review Board

(IRB) guidelines, institutional and individual forms of informed consent were reviewed and signed by site administrators and participants involved in this research study.

In addition to the confidentiality of individual participants, it was also important that the identity of the research site be protected (Creswell, 2008). Balancing external validity with the need to protect the identity of the research site was carefully considered. Pseudonyms for the district and individual schools were selected and used in the preparation of all documentation related to this research project. Beyond the basic protection of identity, the team thought carefully about the use of descriptive data as a possible threat to the anonymity of the district. Providing rich descriptive information to define the context for the current study was important to the transferability of our results (Lincoln & Guba, 1985). That being said, this rich contextual information could also provide readers with enough information to narrow locations and possibly identify the research site. The team reviewed and selected descriptive data that balanced the need to establish transferability with the ethical imperative to maintain the anonymity of the participating district.

This research project leveraged semi-structured interviews, and an archival document review to triangulate evidence to examine organizational learning via organizational learning mechanisms in a district engaged in ongoing curriculum reform. The following pages provide a detailed description of data collection and analysis procedures.

Data Collection and Analysis

Data collection. After acquiring IRB and research site approval, the research team engaged in fieldwork between August and December of 2015. During that time the

research team conducted semi-structured interviews and the collection and review of archival documents. Final protocols can be found in Appendices A through F. To ensure accurate and complete collection of data, in person interviews were recorded with the explicit permission of participants.

Data storage was a key consideration for the research team. A collaborative, web-based platform was preferred but needed to be balanced with the storage and safety of the data. Prior to selecting a service, privacy and data security policies were reviewed to ensure (a) compliance with all regulatory requirements and (b) appropriate protections against theft and loss of data. Once the review was complete, a secure, encrypted web-based service was selected for use. All print, digital and audio files were then stored using this service for the duration of this project.

Data analysis. The team employed a collaborative data analysis process to conduct coding, narrative analysis, and the development of research memos/journals for this project (Coffee & Atkinson, 1996; Maxwell, 2008). The team approach to analysis of documents and interview transcripts protected the analysis from research bias by ensuring that single interpretations did not compromise the validity data (Yin, 2009). This collaborative process ensured that two or more team members were involved in the coding of each document and transcript.

As suggested by Yin (2009), team members read all documents and transcripts in their entirety as the first stage of document and transcript analysis. In doing so, we gained perspective on whether and to what extent data sources could be used to further or increase knowledge around the curriculum reform and the district's use of organizational learning theory. Our initial reading further informed our understanding of participants'

experiences and the language and definitions of the district's reform efforts. Employing this additional step within the analysis process supported a comprehensive and valid review of district practices regarding curriculum reform and organizational learning.

The second phase of document and transcript analysis involved a line-by-line review of each document to identify key words and phrases that (a) referred specifically to the ongoing curriculum reform efforts, and/or (b) reflected elements of the organizational learning theoretical framework (Argyris & Schon, 1978; Schechter & Atarchi, 2014). This phase of analysis by the team served dual purposes. First, it provided initial insights into participant perception of the ongoing curriculum reform and the organizational learning mechanisms deployed to support them. Secondarily, the collaborative review of documents and transcripts provided multiple opportunities for the research team to calibrate operational definitions of concepts within the theoretical framework and, as a result, enhance the inter-rater reliability of our coding processes.

The third phase of the document and transcript review process attempted to identify and establish the extent to which ongoing curriculum reform efforts and district organizational learning mechanisms were aligned across the district. Using the theoretical and conceptual framework coding conducted in the previous round of review, the research team then identified the documents and transcripts in which those coded keywords and phrases appeared. As a result of this two-pronged coding mechanism, the team was able to gain insight into the extent to which district curriculum priorities and organizational learning mechanisms were aligned between and agreed upon throughout the district.

In person interviews and document review provided rich data sources that the team used to investigate the presence of organizational learning mechanisms (OLMs) within the district and the efficacy of those OLMs. Yin (2009) writes, "The same single case study may involve more than one unit of analysis. This occurs when, within a single case, attention is also given to a subunit or subunits" (p. 50). Applied to our study, these subunits included the Superintendent, central office administrators, principals, instructional coaches and teachers.

Data analysis focused upon providing insights into how district and school leaders leveraged organizational learning mechanisms to implement and support curriculum reform. Our data analysis proved to be ongoing and often coincided with ongoing data collection. Through this approach, the research team engaged in multiple opportunities to refocus and hone processes and protocols thereby strengthening the validity and reliability of our findings. (Maxwell, 2008). Data analysis consisted of three primary approaches, including coding, narrative analysis, and memos/displays.

Coding. Coding utilized an a-priori framework as a starting point for the process (Crabtree & Miller, 1999; Maxwell, 2008). This a-priori coding system reflected Schechter and Atarchi's (2014) five elements of organizational learning mechanisms (organizational memory, information acquisition, information interpretation, information distribution and information retrieval). Subsequent rounds of collaborative coding built on the initial theoretical coding. These secondary and tertiary rounds of collaborative coding included theoretical coding utilizing concepts that included theory of action, theory in use, mental maps, and task systems (Argyris & Schon, 1978) and concrete conceptual information driven by the district's ongoing curriculum reform priorities.

While a-priori coding was the primary mechanism deployed by the team, codes and coding evolved through a constant comparative methodology in which data were continuously reviewed and discussed throughout the collection and analysis process (Miles, Huberman, & Saldana, 2014). As the team became more familiar with the ongoing work of the district, team perceptions and priorities shifted and codes and coding processes were modified to reflect the team's learning and experience within the district.

Narrative analysis. Narrative analysis supported the team in analyzing transcripts and archival documents, and identifying relationships between statements and actions within the context of the district under investigation and the OLT/OLM theoretical framework (Atkinson, 1992). The narrative analysis added value to findings and recommendation in that it uncovered relationships and patterns that the categorical nature of coding may have neglected. As such, the narrative analysis not only added analytical value, but also contributed to the internal and external validity of the overall study (Maxwell, 2008).

Memos. Memos added a third layer of analysis to the current study (Maxwell, 2013) and offered the research team opportunities to further deepen their collective understanding of the curriculum reform efforts and organizational learning mechanisms of the district. In addition the production of memos, journals entries, and graphics brought further clarity to the team's understanding of both the theoretical framework and its manifestation in the Belvedere Public Schools. As a result, the shared understanding developed by the team enhanced the overall reliability and validity of our findings and recommendations.

Validity and Reliability Considerations

Four tests are commonly used to establish the quality of social science research. These include construct validity, internal validity, external validity, and reliability (Yin, 2009). Each is addressed in the following pages.

Construct validity. Construct] validity refers to the identification of the "correct" measures of the concept studied (Yin, 2009). The team worked to ensure a comprehensive and shared understanding of key concepts embedded in the theoretical and conceptual frameworks for the study. A collective review of the literature and research addressing organizational learning theory and organizational learning mechanisms was a key starting point for the development of construct validity. Through this review, the research team developed the conceptual definitions that would support the formulation of methodology and the subsequent collection and analysis of data.

As the methodology for this study was developed, the team worked to ensure construct validity through use of cognitive interviewing and pilot interviews (Merriam, 2009) in developing interview protocols. Through cognitive interviews, educators were asked to review the interview questions and tell the researcher what they thought the question was asking them. In this way we were able to assess whether or not the questions were addressing the concepts they were designed to capture. Pilot interviews were then conducted to get a sense of the kinds of data the questions would elicit in the field. Feedback from cognitive and pilot interviews were used to revise and improve interview questions.

The constant comparative approach applied during the data collection and analysis phases of this project also helped to bolster construct validity (Miles, Huberman, & Saldana, 2014). Throughout data collection and analysis, the team met regularly to

review data, discuss the project, and clarify our current understanding and perceptions of the district's work. As such, the team consistently reviewed its working definitions of concepts embedded in the theoretical framework in light of the ongoing research and data collection.

Internal validity. While the current study was not designed to draw a direct causal relationship between curriculum reform and the district's application of organizational learning theory, the research team aimed to understand and explain the relationship between ongoing curriculum reform efforts and the district's use of organizational learning theory to support that work. As such, the internal validity of this study was considered as the team designed and executed the current study. Using Yin's (2009) guidance, Table 2.1 presents the mechanisms employed by the team to strengthen internal validity.

Table 2.1

Internal Validity Checks

Strategy	Explanation
Peer review	The research team will present findings to colleagues who are both familiar and unfamiliar with the topic and study. The research team will provide peer colleagues with guiding questions to support critical analysis of the study and its findings.
Rival explanations	The research time will search for confirming and disconfirming explanations that may shed light on the relationships between constructs.
Methods and data	This study will employ multiple methods

triangulation	(interviews and document review). Data collected from these methods will be triangulated to analyze the constructs under investigation.
Investigator triangulation	Throughout the data collection and data analysis the research team will engage in collaborative inter-rater reliability checks and collaborative coding.
Participant feedback	Participants will be provided the opportunity to review interview transcripts for accuracy. Once complete, preliminary data analysis will be shared with participants to gather their insights and feedback.

External validity. External validity refers to the extent to which a study's findings can be generalized. The context of the current study was an important consideration in framing findings and recommendations. Every school district is unique in terms of, amongst other things, its size, composition and operational policies and procedures. Given the wide variation between school systems and their organizational complexity, it was important that the team provide sufficient descriptive data to couch and contextualize our findings and recommendations. Doing so supported external validity by ensuring that findings and results are extrapolated carefully to settings in which it is reasonable for them to be applied.

Participant selection was also considered by the research team as a means to further support external validity. The scope and focus of the current study created a situation in which building a participant pool representative of the district was imperative. In building a representative sample the team also enhanced external validity by ensuring that participants from all hierarchical strata were represented in the sample.

Reliability. The reliability of this study related to whether or not the replication of the study would yield the same results (Merriam, 2009). To support reliability, the team employed the use of a case study design protocol and a case study database (Brereton, Kitchenham, & Budgen, 2008; Yin, 2009). The case study protocol utilized a format adapted from EASE (2008) to clearly spell out the processes, procedures, and decision-making criteria for all elements of the current study. In addition to a structured protocol to support the development of the study, the team also worked to ensure clarity and specificity in articulating all methodology so that others may repeat this work in future studies.

Chapter 3

Introduction: Organizational Learning Theory & Curriculum Reform

In the current climate of U.S. public education, external demands such as No Child Left Behind (NCLB) mandates and Common Core State Standards (CCSS) weigh heavily on schools and districts. These mandates exist in an effort prepare all students for either the workforce or for college readiness (NCLB, 2001; RTTT, 2009). For district leaders, this means not only adopting new mandates, but also ensuring alignment among schools. Given the pressing need to implement district-wide reform in public education, our research team explored how district and school leaders think about and apply organizational learning theory (OLT) and organizational learning mechanisms (OLM's) to school reform.

Our research was conducted based on the idea that some research supports the understanding of school districts as learning organizations or learning systems (Honig, 2008). Organizational learning theory can be described as a change in an organization's knowledge as a result of the members' experiences over time (Argyris & Schon, 1978; Argote & Miron-Spektor, 2011). More specifically and as part of organizational learning, certain mechanisms exist that support an organization's functioning as a learning entity. Organizational learning mechanisms (OLMs) have been described as "institutionalized structural and procedural arrangements for collecting, analyzing, storing, disseminating, retrieving, and using information that is relevant to the performance of the organization and its members" (Schechter & Atarchi, 2014). Attributes common to organizations are prevalent in school districts, as well. For instance, school districts and organizations may divide responsibilities and roles, use systems and structures to facilitate work and change

efforts, and leverage individual learning and knowledge to impact the knowledge of others (Popper & Lipshtiz, 1998).

Organizational learning theory relates to the work of school districts as their practices illustrate organizational learning mechanisms (OLMs). OLMs support organizations to collect, analyze, store, distribute, and use new information to benefit the organization (Popper & Lipshitz, 1998; Schecter, 2008; Schecter & Atarchi, 2014; Schecter & Quadach, 2012). Table 3.1 illustrates how school districts employ OLM's and the five domains of the learning cycle: organizational memory, information acquisition, information distribution, information retrieval from memory for organizational use, and information interpretation (Schechter & Mowafaw, 2013; Schechter & Atarchi, 2014).

Table 3.1

Elements of the organizational learning cycle and school district examples

Attribute	**Definition**	**School District Examples**
Organizational Memory	The process and means by which organizational experiences are stored and coded into organizational memory for future use	Utilization of routines and procedures, meeting agendas and meeting minutes
Information Acquisition	The process of obtaining knowledge	Professional development and collaborative opportunities to share best practices
Information Distribution	The process of sharing information that leads to understanding	Share student work with colleagues and instructional rounds
Information Retrieval	Organizational members draw on the encoded information to guide their decisions and actions	Data warehouse or web-based systems that hold student assessments, curriculum maps, and district initiatives

Information Interpretation	Organizational members draw on the encoded information to guide their decisions and a socio-cognitive process that ties meaning to the distributed information	Opportunities for debrief, reflection, and engagement in calibration exercise

Note: Adapted from "Toward an Organizational Model of Change in Elementary Schools: The Contribution of Organizational Learning Mechanisms," by Schechter, C. and Qadach, M., 2012, *Educational Administration Quarterly*, *48*

Purpose of the Group Study and Group Roles

Efficacy in achieving curricula alignment throughout a school district relies heavily on leaders' use of learning theories for improvement efforts (Honig, 2008). In the district of study, Belvedere Public Schools, the curriculum reform underway involved development, implementation, and district-wide alignment of year-long plans using an Understanding by Design (UbD) model (Wiggins & McTighe, 1998). The UbD model, also known as a backward design method, employs three stages: (1) identify the desired outcomes for students by developing essential questions before designing a lesson; (2) after learning outcomes are identified determine how students will demonstrate learning; and (3) plan the learning activities and instruction (Popham, 2008).

Through the lens of OLT and focusing on UbD as a reform, the research team investigated district and school leaders' theories of action and the organizational learning mechanisms they implemented. Because school districts are complex organizations and often comprised of numerous professionals that make up the district's hierarchy, the team examined the multiple subunits within the district's personnel hierarchy.

Relation to Team Project

While the group explored the strata of the school district's personnel, this individual study will focus on the Superintendent and Chief Academic Officer (CAO). As the commanding instructional leaders of a school district, the Superintendent and CAO are two key stakeholders that play a vital role in implementing federal, state and local educational reforms (Björk, Browne-Ferrigno & Kowalski, 2014; Reynolds & Warfield, 2010). This individual study aimed to analyze the intended systems and structures the Superintendent and CAO put in place to support the team's comprehensive understanding of the entire organization.

In concert with each research team member, my investigation addressed the gap in the literature to uncover OLM use by the Superintendent and CAO. While individual studies have been designed to stand alone, it is important to note that collectively, our work provided us with the greatest opportunity to acquire a complete picture of how the organization functions when implementing curriculum reform. When the individual studies are analyzed in a larger study, our work shows a cohesive and comprehensive examination of how a district supports curricula reform through the use of organizational learning mechanisms.

Research Questions

While a robust research base supports OLT within schools (Colville et. al, 2014; Honig, 2003, 2008; Schechter & Atarchi, 2014) and provides evidence that implementation of systems, procedures, and structures support the functioning of learning organizations (Koliba & Gajda, 2008; Knapp, Copland, Honig, Plecki, & Portin, 2010; Senge, 1990; Spillane, et.al., 2011; Waters & Marzano, 2009), the specific role OLMs have in supporting district leaders in reform efforts have not been explored in depth.

My individual study was guided by two research question:

- What organizational learning mechanisms (OLMs), if any, do district level leaders (Superintendent and Chief Academic Officer) use to support implementation of a district-wide curriculum reform?
- What structures for accountability exist to support implementation of a district-wide curriculum reform?

Literature Review

Organizational learning theory has been applied to many professional fields, and most recently to education. The review of the literature will discuss three main points: (1) The roles of the Superintendent and CAO as *instructional leaders*. While much of the research does not specifically discuss CAOs, this review of the literature generalizes from other high-level district leaders. Within a learning organization there are various instructional leaders, which may include instructional coaches, building leaders, central office administrators and superintendents (Bredeson & Kose, 2007; Elmore, 2000); (2) The district leaders' function in creating systems for *accountability* within the learning organization; and (3) The school district's function in *building capacity* within the learning organization in an effort to engage in sustained positive change (Stringer, 2013).

Roles of district leaders and instructional leadership. Elmore (2000) claims the purpose of leadership is to improve instructional practice and student outcomes. Instructional leadership involves curriculum and instruction work that directly impacts student achievement (Cotton, 2003). In Massachusetts, the first standard superintendents are evaluated on is *Instructional Leadership.* Standard one indicates, "The education leader promotes the learning and growth of all students and the success of all staff by

cultivating a shared vision that makes powerful teaching and learning the central focus of schooling" (Massachusetts Model System for Educator Evaluation, 2012).

Superintendents have been described as the "lead learners" within the learning organization and have direct access to many stakeholders within a learning community (Bird, J. Dunaway, D.M., Hancock, D.R., & Wang, C., 2013). Likewise, CAOs have shown to have a great deal of influence in the learning organization as well. In fact, Leithwood and Donald (1991) found that CAOs influence was perceived to be greater than superintendents (p. 93). Superintendents and CAOs level of access and influence may set the stage for student outcomes (Bird, Dunway, Dawson, Hancock, and Wang, 2013).

Implementing a district wide curriculum reform requires a high level of supervision. Fullan (1992) found that when implementing a district wide curriculum reform, neither a complete top-down nor a grass-roots approach was effective. Rather, more effective approaches are for superintendents and central office administrators to support principals in curriculum management (Fullan, 1992, p. 75) and to have an "increased interaction and negotiation between schools and area or central office, and investment in the development of capacity at both levels' reform efforts" (p. 78). Interestingly, Mitchell (2014) found increased positive student outcomes are fostered when district leaders engage alongside principals and teachers and function as "lead learners," rather than relying upon on central office and building administrators to implement action plans.

Similarly, Palandra (2010) supports the notion that supervision of instruction is central when implementing a district-wide reform. Palandra (2010) explored a school

district that implemented curriculum maps and standard lesson plan formats to assure implementation of the Common Core State Standards and to address the issue of student mobility. She noted the role of the superintendent in implementing the curriculum reform was to work with principals to review and evaluate lesson plans, visit classrooms to assess student learning, and review individual student progress with principals (p. 225). Additionally, the superintendent modified the principal evaluation process by placing a heavier focus on instructional leadership and supervision of instruction. Palandra (2010) found the use of standard lesson plans and curriculum maps and focused professional development and supervision "had to be at the basis of the consistency and the quality of instruction delivered to students" (pg. 229).

The superintendent role was once designed as "the instructional leader and teacher of teachers" and more recently has shifted to one that is highly focused on politics and outcomes that demonstrate student achievement (Bredeson & Kose, 2007; Marks & Printy, 2003). According to the work of Bredeson and Kose (2007), superintendents believe curriculum and instructional leadership work to be an essential component of the job, yet they spend their time engaged in other activities that involve legal and political issues particularly involving school boards. In the climate of accountability, superintendents are pressured to focus on student achievement outcomes, and the daily reality of the work does not allow superintendents to focus efforts on curriculum and instructional leadership (Bredeson & Kose, 2007). For superintendents and CAOs, pressure to comply with external policy demands or working in specific "subunits" has made it difficult to for them to serve as an instructional leaders (Honig, 2008). Thus, external demands may be barriers for instructional leadership (Bredeson & Kose, 2007).

However, organizational learning theory may provide district leaders such as superintendents and CAO's with the systems and structures to support teaching and learning (Honig, 2008).

Internal accountability systems. Elmore (2005) defines internal accountability as "coherence and alignment among individuals' conceptions of what they are responsible for and how, collective expectations at the organizational level, and the process by which people within the organization account for what they do" (p. 140). Educational leaders such as superintendents have become more attuned to the increased accountability placed on school districts to focus on student achievement outcomes (Bredesen & Kose, 2007) and in many cases there are explicit accountability goals. There is, however, little guidance on how to meet those demands (Pepper, 2010). Still, schools that perform well with external accountability mechanisms tend to have strong internal practices. Elmore (2003) explains:

> Not surprisingly, schools and school systems that do well under external accountability systems are those that have consensus on norms of instructional practice, strong internal assessments of student learning, and sturdy processes for monitoring instructional practice and for providing feedback to students, teachers, and administrators about the quality of their work (p. 3).

Building internal accountability systems is an essential element for successfully responding to demands of reform initiatives (Carnoy, Elmore & Siskin, 2003; Elmore, 2005). Superintendents and high level district administrators like CAOs are the first line of defense in developing and articulating systems for accountability for central office and building leaders, teachers, and all members of the learning organization.

Balancing the internal and external demands for school and district improvement, however, is an arduous task. Shifting from isolation to coherence around vision, expectations, and internal accountability may be cultivated through use of organizational learning mechanisms by influential change agents such as the superintendent and CAO. District leaders may leverage OLMs to support change in educational reform efforts for positive student outcomes (Collinson & Cook, 2007; Schechter & Atarchi, 2014). While some research asserts OLMs can support leaders in reform efforts, a deeper exploration of the actions and behaviors of superintendents and CAO is needed. For superintendents and CAOs, in working to support reform efforts, the implications of the learning and growth of the organization are significant.

Building capacity. Capacity building can increase schools abilities to engage in sustained change for improvement. Capacity may be cultivated through three practices which include, "knowledge and utilization; a 'switching on mentality;' and division of labor: roles and responsibilities" (Stringer, 2013, p. 95). First, the school improvement process requires various stakeholders—including the superintendent and CAO—to be united around their commitment to increase and use new knowledge through collaborative opportunities, make time for reflection, and provide relevant professional development opportunities (Stringer, 2013). Second, Stringer (2013) suggests capacity building increases when stakeholders adopt a "switch on mentality," meaning they value the learning process, which can be demonstrated by "engineering time and place for collective dialogue…" (p. 106). Lastly, Stringer (2013) promotes building capacity through leadership practices that are "not just the prerogative of those in positions of authority but shared amongst others" (p. 107).

As opportunities for learning increase, the organization has an opportunity to expand the capacity to respond to external demands, such as curricular reform. When superintendents and district leaders like CAOs exercise "strong leadership," they are well positioned to influence the capacity of the learning organization (Dinham & Crowther, 2011). Strong leadership may be demonstrated by the ability to develop systems and structures to develop and share new knowledge, work collaboratively, and create a shared sense of responsibility of the members in the organization (Stringer, 2013). More specifically, a major role of superintendents is to model instructional leadership through their relationships and work with principals (Leithwood, 2010).

Organizational learning theory offers a theoretical framework that supports the work of district leaders to build capacity. For example, utilization of OLMs can support development and sharing of new knowledge, valuing collaborative opportunities, and division of roles and responsibilities (Schechter, 2008). Superintendents and CAOs also play vital roles in building human and social capital through shifting organizational learning theory into practice (Honig, 2003). For example, a commitment to improving individual talent is an investment in the development and growth of an organization. As leaders increase human capital by focusing on individuals' talents, individuals' capacity may then translate into increased organizational capacity (Fullan & Hargreaves, 2012; Spillane & Thompson, 1997). Increased organizational capacity advances the "collective ability" to enact positive change (Fullan, 2005, p. 4). As Fullan and Hargreaves (2012) advise, "If you want to accelerate learning in any endeavor, you concentrate on the group" (p. 89).

Fullan and Hargreaves (2012) support the notion that learning organizations may implement practices to increase human capital, "the economically valuable knowledge and skills that could be developed in people—especially through education and training" (p. 89). The idea of human capital, however, is tightly connected and dependent on social capital, which "gives you access to other people's human capital. It expands your networks of influence and opportunity" (Fullan & Hargreaves, 2012, p. 90). Further, social capital can increase human capital but human capital does not raise social capital (Hargreaves, PSAP lecture, July 7, 2014)

Building social capital in the district allows for effective professional development. One example of social capital building is to develop systems and structures for gaining and sharing new knowledge. Hannaway and Jupp (2010) emphasize that creating opportunities for professionals to collaborate and think about their work will inspire more new ideas.

Applying organizational learning theory to the field of education may support district leaders to implement curriculum reform. The review of the literature highlights three main major points: (1) The superintendent and CAO's roles as *instructional leaders* (2) Creating systems for *accountability* within the district may be the responsibility of the "lead learners," district leaders and (3) *Building capacity* within the learning organization may be an effective strategy to engage in sustained positive change (Stringer, 2013).

Research Design

This study aimed to examine how one superintendent and a CAO used organizational learning mechanisms to support a district-wide curriculum reform. This study employed a single, qualitative case study methodology. A qualitative research

design is most appropriate for this study, for I aimed to explore a current reform that a school district is experiencing. A single case study design provided insight into how the Superintendent and CAO attempted to implement curriculum reform using OLMs.

This section outlines the overall research design, which includes details of the site and participation selection, instrumentation, and data analysis. All team members collected data and worked collaboratively to analyze the data. As a result, modes to ensure confidentiality and consent, validity and reliability, as well as documentation of the limitations of the study have been discussed in chapter two of the group dissertation in practice. Moreover, the methodology of this individual study is closely aligned to the group methodology, but there are some unique aspects of this individual study that are explained in more detail.

Site and Participation Selection. This study focused on the Superintendent and CAO of a mid-sized urban school district serving approximately 7,000 students in kindergarten through twelfth grade. The Belvedere School District is composed of seven elementary schools, two middle schools, and one high school. A mid-sized district allows for deep investigation given the 6-month data collection period.

Both the research site and participants were chosen using a purposeful, criterion sampling approach (Creswell, 2002; Maxwell, 2013; Patton, 2002), which involves strategically selecting the sample and site for in-depth study. The criterion for site selection included a medium-sized district that had a superintendent, CAO, a few central office administrators and multiple elementary schools and principals. In establishing this criterion, it was important to consider sites large enough to support comprehensive data collection and subsequent analysis, but not so large that data collection would become

unfeasible for our timeline. Further, the selected site is part of a multi-district partnership committed to curriculum reform (UbD) and has been engaged in this reform for at least 3 years. The participants were chosen based on the criterion of holding district leadership positions that qualified as the chief instructional leaders and "heads" of the learning organization.

Research on sample size does not clearly define an ideal number of participants for qualitative research (Patton, 2002). Further, Mason's (2010) review of sample sizes in over 500 case studies revealed sample sizes ranged from one to ninety-five with a mean of twenty-eight and a standard deviation of eighteen. Given this, with a sample size of two, the goal of this study was to engage in deep inquiry with the Superintendent and CAO to learn about OLMs and structures for accountability used to support curriculum reform. Also, I drew upon interviews with other stakeholders to provide insight into how others viewed district leaders.

Instrumentation and Data Collection. The case study drew upon interviews and documents collected by the team of researchers to understand OLM operationalization of the Superintendent and CAO in implementing curricula reform. The five learning processes (organizational memory, information acquisition, information distribution, information retrieval, and information interpretation) provide the framework for all data collection and analysis. The five learning processes have been described in more detail in Chapter One.

Interviews. This study used in-person, in-depth, semi-structured interviews. The Superintendent and CAO were interviewed individually, using the same protocol. Interviews lasted between 45-60 minutes. In an effort to delve deeper into identified

priorities, it was important to interview the Superintendent and CAO. In person, semi-structured interviews aimed to support the following goals. (1) Gain a deeper understanding of district and school priorities, or the district's theory of action; (2) learn what organizational learning mechanisms the superintendent and CAO used to support the curriculum reform; and (3) understand the structures for accountability the Superintendent and CAO used to support the curriculum reform.

The interview protocol explored the Superintendent's and CAO's use of organizational learning mechanisms intended to support the curricula reform underway. The conceptual framework of organizational learning mechanisms guided the development of the interview protocol. Interview questions were geared toward learning about organizational memory, information acquisition, distribution, retrieval, and interpretation. For example, questions probed for understanding on formal learning procedures, training, and means for information gathering, retrieval and interpretation for the curriculum reform.

Document review. A review and analysis of documents provided a rich source of data to better understand the OLMs the Superintendent and CAO used to support the curriculum reform. Additionally, documents supported my understanding of district and school priorities related to the curriculum reform. Yin (2009) noted that a review of documents is important to "corroborate and augment evidence from other sources" (p. 103). Document review and analysis took place prior to and during fieldwork. During fieldwork, additional documents and work products were requested of the superintendent and CAO. Use of documents in collaboration with individual and group data collection

processes helped highlight the alignment of action plans and behaviors (Merriam 2009; Patton, 2002).

In an effort to develop a meaningful context for the ongoing curriculum reform in the district, a variety of documents were collected (See Table 3.2). The initial documents for review consisted of publicly available materials such as school and district improvement plans, district strategic plans, and some curriculum documents related to the curriculum reform of study. The participants were provided an opportunity to share other documents they use to support learning. For instance, additional documents that were shared by the Superintendent included updated district and school improvement plans that were different than those we accessed initially. The CAO shared a PowerPoint presentation that was created for stakeholders to better understand the vision and mission of the curriculum work underway among the District Partnership.

Table 3.2
Documents Reviewed

Publicly Accessed Documents
District Improvement Plan (2012)
Elementary School Improvement Plans (2013, 2014)
Requested Documents (not public)
District Improvement Plan (2015)
Elementary School Improvement Plans (2015)
Year-long Curriculum Plans (2013, 2014, 2015)
Professional Development Plans (2013, 2014, 2015)
Professional Development Materials
Additional Documents
Documents identified by interview participants

Data Analysis

In order to understand the operationalization of OLMs, a qualitative data analysis was employed as the data were collected and organized. I transcribed interviews using REV software, and documents and observation notes were organized by OLM categories. The OLMs were used to create code domains (i.e. organizational memory, information acquisition, information distribution, information retrieval, and information interpretation) and to describe patterns that emerged from the data. The research team made "comparisons between the data and the derived categories until the core ideas have been verified" (Hill, Thompson, & Williams, 1997). Additional coding cycles were completed in which sub-codes were identified along with themes that emerged. The team came to consensus in order to initially code the data and identify core ideas in each domain. Finally, the team conducted a cross analysis, comparing data across our cases in order to describe consistencies in the core ideas within each domain.

The document review involved an exploration of school and district improvement plans, curriculum year- long plans and the district website. The school and district improvement plans yielded the most information and greater attention was placed on these documents. Using a collaborative coding approach, the research team first identified all school and district priorities. Second, the research team identified only those priorities that were directly involved with the curriculum reform (ie. Alignment to Common Core State Standards, year-long plans, professional learning groups, use of coaches, and District Partnership). Lastly, looking directly at curriculum reform practices, the research team identified areas of alignment between the district and school improvement plans and also between schools' improvement plans.

Validity and Reliability. Four tests were used to assure this study was valid and reliable: construct validity, internal validity, external validity, and reliability (Yin, 2009). These tests have been described in more detail in Chapter Two. Interview questions were piloted in an effort to test the clarity of the questions' purpose and delivery. Internal validity checks entailed employing strategies that included opportunities for peers to review the findings to support critical analysis, seeking out rival explanations, collection and analysis of interview and document review data, and engagement in inter-rater reliability checks among the research team through the data collection and analysis processes. In order to generalize the findings of this study to support Superintendent's and CAO's to use OLMs for curriculum reform, external validity checks were critical. Field-testing the interview questions, interviewing a number of individuals in the district in addition to superintendents and CAO's, and providing contextual information about the research site may have increased the likelihood of replication and generalizability of findings within similar contexts. The reliability of this study was enhanced by thoroughly indicating the processes and procedures utilized throughout the study. Further, records of all raw data (notes, interview transcripts) allowed methodological consistency and I engaged in ongoing calibration with the research team to ensure the coding and analysis processes were consistent.

Limitations

Given the time constraints of this study, the sample size includes two individuals. While one Superintendent and CAO may provide meaningful information and contribute to the growing body of research on OLT in school districts and district leaders use of OLMs to support change efforts, a larger sample of superintendents and CAOs in various

school districts across the state or nation would offer more in-depth findings. Although the sample size was small, I aimed to minimize the impact of this limitation by using in-person and in-depth interviews to gather rich information to provide a comprehensive understanding of the how, as district leaders, they have supported the curriculum reform. Also, to decrease the impact of the brief timeline and small sample size, I analyzed data from interviews my colleagues conducted with central office administrators, principals, and teachers. This data has strengthened my findings. Additionally, I kept all memos and notes throughout the research process. Reviewing memos and notes allowed for increased reflection on data collection and analysis and this, has increased credibility of findings.

Another limitation may be that currently I work as principal and have overseen implementation of curriculum reform. Further, I am familiar with the specific curriculum reform efforts underway in the Belvedere Public Schools; from 2012- 2014 I participated with the District Partnership in a district nearby Belvedere. Given my understanding of the principal role and prior knowledge about the current reform, to minimize this potential bias in analysis I have engaged in collaborative coding with colleagues and reliability and validity checks while developing the interview protocol.

Findings

The following sections draw upon data from document analyses before turning to an examination of data from Superintendent and CAO interviews and data from interviews my colleagues conducted with central office members (assistant superintendent, directors, and coaches), principals, and teachers. Findings are organized by the organizational learning mechanism; For example, such structures allow members to acquire and share, store, and retrieve information, build capacity, and support

implementation of district priorities. Additionally, there is a section dedicated to accountability, a highly used strategy by the Superintendent and CAO to maintain the intended integrity of the curriculum reform. For this study, *accountability* is not considered an OLM, but data revealed the importance of accountability in this district to support curricula reform.

Two research questions guided this study: (1) What organizational learning mechanisms, if any, do district leaders (Superintendent and Chief Academic Officer) use to support implementation of a district-wide reform?; (2) What structures for accountability exist to support implementation of a district-wide curriculum reform? Through document analysis and semi-structured in-person interviews, the subsequent sections discuss findings that support the aforementioned research questions. First, I present findings from the document review to outline district and school priorities related to the curriculum reform. Next, I turn to the in-person interviews to share the application of OLMs by the Superintendent and CAO to support the curriculum reform.

School and District Priorities

To answer the first research question, I first conducted a document review to identify documented school and district priorities. The document analysis revealed over 340 new or continuing practices mentioned across three district improvement plans (District, Science, Technology, Engineering, and Math (STEM), and Humanities) and on five school improvement plans. Of the 340 new or continuing practices outlined in school and district plans, 13 of the practices were specific to the curriculum reform. The principals and school governance council (teachers, community member, and parents) at each school identified new and continuing practices and complied them in the

improvement plans that were examined. While some of the other practices mentioned on improvement plans such as “winter festival,” “website recruitment of staff,” “Raising a Reader,” “leading together,” “Open Circle,” “homework club,” “evaluation leaders,” “small group instruction,” and “Chromebooks” may have supported the curriculum reform, only practices directly related to goals of the reform were identified.

District improvement plans identified 8 new or continuing practices that related to the curriculum reform: ANET, BSRI, directors meetings, PLCs, CCSS, peer observations, 5DP, and model curriculum units. Table 3.3 provides the acronyms and paired description of the documented practices shown in school and district improvement plans.

Table 3.3

Description of Practices

Practice	Description
ANET	Achievement network; Company that provides schools with coaching throughout the school year to examine data and develop a reteach plan using data from standards based interim assessments
BSRI	Baystate Reading Institute; Organization that provides teacher and principal coaches and student performance data to improve individualized reading instruction an student achievement
Math and Literacy Coaches	Each school has a coach for reading and math to support quality instruction, alignment, and facilitation of professional development
Directors Meetings	Meetings that have been characterized by the Superintendent as “another piece of professional development.” Directors and teams of teachers facilitate new learning opportunities to best implement year long plans
PLCs	Professional Learning Communities; meetings facilitated by designated and trained grade level teachers

CCSS	Common Core State Standards; Refers to the work of aligning curricula to the Common Core State Standards
Peer Observations	In this district, schools that are apart of the extended learning time grant are required to complete three peer observations a year
5DP	District Partnership; A joint educational effort between 5 school districts to improve instruction and academic achievement
District PD	Professional development; Universal to the teachers in the district
Building PD	Professional development; Specific to individual schools
Administration Meetings	Meetings with the Superintendent, directors, and principals
YLPs	Year-long plans; Also referred to as common curriculum maps or pacing guides across all grades and subjects, aligned to state standards
MCUs	Model Curriculum Units; Using the Understanding by Design process, units help educators implement the State Curriculum Frameworks

Table 3.4 displays which practices were evident across the district and school improvement plans and the occurrences of each practice. Data revealed some alignment between the district and school improvement plans.

Table 3.4

Documented Practices in District and School Improvement Plans

Practice	District Improvement Plans	School 1	School 2	School 3	School 4	School 5	Occurrences
ANET	*	*	*	*	*	*	6
BSRI	*	*	*	*		*	5

Math and Literacy Coaches		*	*	*	*		4
Directors Meetings	*	*	*	*			4
PLGs	*	*		*	*		4
CCSS	*		*	*	*		4
Peer Observations	*	*	*				3
5DP	*		*			*	3
District Professional Development		*	*	*			3
Building Professional Development			*		*	*	3
Administration Meetings		*		*	*		3
YLPs		*		*			2
Model Curriculum Units	*						1

School and district improvement plans illustrated some alignment of priorities. For example, ANET was identified across all 5 schools, BSRI and literacy and math coaches were present in 4 of the 5 schools, PLCs were a common thread in 3 of the 5 schools, and directors meetings and alignment to the CCSS was evident in 3 of the 5 school improvement plans. Neither descriptions, nor details of new or continuing

practices were provided within the district and school improvement plans. Improvement plans simply listed terms such as "PLCs" and "Literacy and Math Coaches" that indicated practices underway. Information about new and continuing practices were gained through interviews.

Task Systems: Organizational Learning Mechanisms used by District Leaders

Information Acquisition. Information acquisition is the process of obtaining new knowledge. Interview data revealed existing systems utilized by the Superintendent and CAO as a means to foster acquisition of new information. Specifically, new information was acquired mostly through the use of collaborative structures and human interactions. Collaborative structures included: teacher-led professional learning communities and teacher work groups to develop and refine yearlong curriculum plans. For example, the Superintendent and CAO discussed various collaborative opportunities that may have fostered new learning. There was an emphasis on human connection, face-to-face interaction to support acquisition of new information. Face-to-face interactions were the most frequent used modality for professional development (both coach and teacher led) and coaching support. One teacher shared that professional development is differentiated and the goal is to keep each session "intimate." This type of professional development is different from a "one size fits all" model, instead Belvedere's model relied on face-to-face interactions to transfer new knowledge to members of the organization.

More specifically, depending on the type of meeting, directors and coaches may have set the agenda, while other meetings had teacher driven agendas. It appeared some meetings in Belvedere had a hierarchical structure and agenda items and information was set and determined at the onset of the meeting. Other meetings allowed for more

exchanging of ideas and agenda items and related information shifted throughout the course of the meeting. Data revealed that teachers and coaches set and guided meeting agendas for PLCs and common planning meetings, and principals generally developed faculty meeting agendas, often under Superintendent directives. The degree in which teachers were involved in agenda development varied between schools, however. For instance, some of Belvedere's schools functioned on a non-traditional schedule, allowing more time for teacher collaboration. At these schools, teachers engaged more regularly with colleagues and coaches than the teachers that worked in schools with traditional schedules. One PLC facilitator, also a coach that works in a school with a non-traditional schedule described an inclusive approach to her leadership which entailed her asking teachers for input in order to design agendas. Teacher interview data revealed some inconsistency among agenda development and meeting facilitation. None of the interviewed teachers that worked in traditionally scheduled schools described a collaborative process to agenda development. This was not the case for teachers that worked in non-traditionally scheduled schools. There may be a connection between school day schedules and time allocated for teacher collaboration.

One of the priorities the Superintendent focused on was increased teacher-led professional development as a means for teachers to acquire new information. The Superintendent shared, "It empowers the teachers more to buy into it…. it's not coming from on top, it's actually coming from the fields themselves." More specifically, the Superintendent relied on teams of teachers to facilitate that professional development on implementation of the year-long plans. The Superintendent promoted teacher led PD by organizing a structure that allowed new information to be shared with teachers by

teachers. In some schools teachers worked in self-selected small groups on projects of interest. Other schools used a less tailored approach to teacher-led professional development: teacher leaders developed a topic, often collaboratively, and grade level groups exchanged ideas and engaged in dialogue. Overall, the Superintendent's underlying expectation was that "everybody understand really what this standard is saying, the expectation is for student achievement." Overall, information acquisition for curriculum reform was most supported by the Superintendent's organization and expectation for collaboration and grassroots professional development led by teachers.

Information Distribution. Information distribution is the process of sharing information for increased understandings. The Superintendent and CAO employed a number of strategies to ensure information was distributed through the learning organization. Again, the dominant way in which the Superintendent and CAO shared information was through allocating time for human interactions and collaboration. For example, in Belvedere all teachers took part in professional learning communities, principal meetings, and coaching. Most information was distributed through those forums. High frequency of human interaction as a means distribute information was evident by the recurrent references to director and coach involvement to communicate with principals and teachers about curricula. For instance, information was distributed most often at meetings (ie. monthly Superintendent's meetings, directors meetings, and as one principal described, "just us" meetings). While curriculum reform was often an agenda item discussed at the various meetings, other topics were also explored. Such topics included the district goals to increase rigor in the classroom and building relationships with families. Monthly Superintendent's meetings involved the

superintendent, assistant superintendents, directors, and principals. “Just Us” meetings were for principals to collaborate around various topics. Director meetings were designated for curriculum directors and principals. Agendas for Superintendent, “Just Us,” and director meetings were at times collaboratively developed by attendees or agendas were created by facilitators. Professional learning communities involved teachers and coaches. Teachers described those meeting agendas as teacher driven and “more productive” than other meetings, for the topics they discussed were timely and more relevant to their work. Faculty meetings, led by the principal, were for school based faculty members and the principal.

Some interview data revealed that the CAO had an important role in distributing information about curriculum. A principal described the CAO’s role as, “the glue that keeps it all together.” The CAO shared that initially, in 2012, her role was to shape the vision for the partnership and coordinate all of the activities. She expressed the evolution of her role and that currently she develops plans for forward movement and shares new projects. While one central office leader, a director, did not perceive the CAO to have an active role in the district’s curriculum, another district leader perceived the CAO and directors’ working relationship differently, “they are very closely connected for the on the ground work.” Further, the principal stated that the CAO works closely with the assistant superintendent and two directors. Similarly, the Superintendent noted the CAO “keeps us abreast of everything that's going on… We have a meeting once a month with all of the superintendents… We set the focus for going forward and what we think the next steps are.” One teacher shared their perception of the CAO’s role in distributing information, “She's like the partnership liaison I guess. She sends out emails periodically.

They're not always related to curriculum, just to let people know what's going on in the Partnership…. our PLC leader would also be completely comfortable contacting her. In the past when we've had questions on that, there's been a pretty snappy response." Although interview data revealed differing perspectives of the CAO's role, she distributed information and may have supported members with curricula matters. For Belvedere Public Schools, the CAO may have offered additional redundancy in supporting systems that promoted learning and adaption with curriculum.

Systems for distributing information that involved teachers were evident. The PLC leader, also a teacher, shared information with teams and was a liaison to the directors. Further, teachers seemed to have high autonomy and trust. The Superintendent expressed, "teachers really are the experts when it comes to pacing and timing of lessons. They're the ones who are closest to the work so they're the ones who should really be making these decisions." Based on teachers' experiences with curriculum tools such as the curriculum maps, ANET assessment cycles, and curriculum materials such as reading and mathematics programs to support curriculum maps, they were asked to give feedback via meetings and using the data house for improved curricula implementation. Given this mindset, data showed many ways in which the Superintendent set up several structures for collaboration, or forums, to provide teachers and coaches with time to distribute information and engage with the distributed information. Examples of information distribution opportunities included teacher-led professional learning groups, Superintendent's meetings that involved directors and principals, and director's meetings.

The Superintendent noted other ways in which she used human centered means to distribute information to stakeholders. Such stakeholders included the public, mayor,

school committee, and families. Information sharing occurred at bi-monthly school committee meetings and monthly city-wide parent guardian organization meetings.

Interview data and most school and district documents noted the integral role of curriculum directors and coaches in distributing information. The CAO reported, "Their coaches are also very influential at saying what's working in the class rooms" and they distributed that information to principals in order to provide further teacher support. The Superintendent stated, "Really the math and literacy coaches are the main guards to make sure that people are on track and where they need to be." Coaches and directors worked alongside the Superintendent to develop and share district curriculum priorities with principals and teachers. Student achievement data suggested the coaching model might have positively supported teaching and learning. The Superintendent described a process that indicated Belvedere as a learning organization, changing and adapting as they implemented curricula reform:

> If we're doing well and we're teaching the right things and we're doing a good job and the kids are really learning what we expect them to learn, then they will do well on standardized assessments. We put a lot of stock right there. We also measure anecdotally by visiting classrooms and collecting data that way through observations of teachers and students. We definitely use that to inform our work. The bottom line is how are our kids doing compared to their peers in other districts. And compared to other like districts, Belvedere is among the top."

As a result of the work with directors and coaches, the Superintendent shared the important work of the teachers "we could look at and talk openly and honestly about what students really were able to do… and then talk about how we helped them in those

areas where they were not able to demonstrate understanding. If we didn't have that data we wouldn't have been able to do any of that work." Information from the Superintendent was discussed with central office administrators, directors, and coaches and coaches shared information with teachers. This might have had a direct impact on the teaching and learning at the classroom level.

The Superintendent and CAO used a variety of mechanisms, including digital, print, collaborative, and human exchanges to distribute information. While data showed that dissemination of information occurred mostly through human exchanges, print and digital materials were useful tools. For instance, a monthly newsletter regarding curricula among the five districts was sent out by the CAO. The receiving audience is wide, involving state level stakeholders, partners, private funders, the larger community, teachers, and families. In order to reach a broad audience the Superintendent explained that shares a weekly broad sheet indicating the main happenings at each school and posts using social media venue such as Twitter.

Theoretically, information distribution and information acquisition may be distinctive, but in practice they may not. It is important to note, however, this is not always the case. For instance, as found in this study, collaboration could be considered a mechanism to both acquire and distribute new information.

The Superintendent and CAO utilized various strategies to distribute information throughout the learning organization. Additionally, these district leaders set up structures for information to be distributed using a hierarchical approach, information sharing from directors to coaches and coaches to teachers, as well as forums for teachers to exchange information with one another.

Organizational Memory and Information Retrieval. Organizational memory is how experiences and information are stored for individuals' and the organization's future use. Connected, information retrieval is how the organization draws upon encoded information in order to make decisions. In the context of this study, organizational memory may have aided in making decisions regarding the scope and sequence of curriculum, usefulness of materials, assessments (ANET quarterly assessments, curriculum based measures, and state standardized assessments), and tailored teacher professional development. Interestingly, there was overlap between how the organization operationalized organizational memory and information retrieval. For example, the District Partnership website stored curriculum year-long plans and UbD units. The Superintendent and CAO reported all teachers, principals, and central office staff members had access to this data warehouse. Additionally, the CAO reported all elementary schools had binders as a way to keep curriculum materials in one place and increase ease of accessibility. Redundancy in this manner could have increased the likelihood of members of the learning organization accessing materials for future use.

The Superintendents and CAO utilized some strategies to increase organizational memory in an effort to support the curriculum reform. The school improvement plans and district website were examples of organizational memory tools. More precisely, mechanisms for organizational memory were evident through the use of shared folders that store curriculum maps and lessons, PLC groups, the District Partnership website, and the curriculum tab on the district website. It is important to note the document review did not reveal documentation of processes or articulation of ideas and priorities. For

example, the district and school improvement plans only listed priorities and did not explain why, how, when, or by whom the work would be completed.

Information Interpretation. Mechanisms for information interpretation ensure organizational members make meaning of the distributed information and draw on the encoded information to guide their decisions. It is important that members of the organization interpret information. Data revealed the Superintendent and CAO promoted calibration by ensuring opportunities for collaboration. The Superintendent reported that teacher-led professional development was one way to ensure a "broad sweeping understanding of what the frameworks are… what we expect to see in classrooms." Creating systems for information to be interpreted in similar ways may contribute to the learning of the organization. For example, a teacher reported school and district leaders allowed for teacher autonomy and trusted that teachers would accomplish quality work for improved practice during teacher led professional development, "They're very, very trusting of us, and allow us to explore these different areas and are very open to change." Through these meetings, systems were refined as information was systematically interpreted. As an example, the Superintendent summarized the vetting process of yearlong plans:

> The teams would sit and literally look at the frameworks and go standard by standard and say this needs to be in September because the kids need to have this before they have that in October. This is what it means and this is what it looks like and this is how long it should take. They dissected those frameworks and they spent a year working on, each grade level, each subject area took about a year to develop the year long plan, which then came out in draft form. The teachers

piloted for a year and then changes were made, adjustments were made based on timing and feedback from all of the teachers in the five districts. They were all invited to give commentary.

Other vehicles the CAO and Superintendent reported to foster consistent information interpretation included monthly Superintendent's meetings with principals and directors, ongoing curriculum work that involves teachers, directors and coaches, use of assessment data to drive practice, and calibration activities among the principals. These modalities may have increased the likelihood of consistent interpretation and understanding of goals and action plans.

Highly used OLMs. When examining Superintendent and CAO use of OLMs, by type, data showed that two OLMs were utilized most often: information acquisition and information distribution. Moreover, the Superintendent and CAO also supported the curriculum reform through creating structures and employing strategies for information interpretation.

The Superintendent relied heavily on systems and procedures for members of the organization to acquire new information in order to support the curriculum reform. Such systems included organizing collaboration among coaches, directors, and teachers, professional development, superintendent and director meetings, and communicating expectations for principals and directors to convey priorities to other staff members. Findings implied clear communication from the Superintendent. Further, the way in which some principals, central office administrators, and teachers discussed district curricular goals, initiatives, and processes suggested common understanding. For instance, one principal stated, "I consider the lines of communication very open and very

well-managed. Not much is slipping through the cracks." Similarly, in a number of interviews when asked about district and school initiatives personnel commented consistently. For example, one teacher noted, "The superintendent made it clear in the beginning that she was looking for rigor in the classroom." The goal of increased rigor was communicated by the superintendent and understood by members of the learning organization.

In regards to promotion of information acquisition, the Superintendent and CAO appeared to be operating in similar ways, evidenced by similar outcomes. For instance, the CAO employed many of the same strategies to foster information acquisition as the Superintendent. Specifically, the CAO planned for teacher work groups to develop and vet year-long plans. Means to distribute information was the second most used OLM among both the Superintendent and CAO. Through interview data, findings revealed the Superintendent and CAO almost equally supported the curriculum reform by utilizing various methods to distribute information. More specifically, while the Superintendent organized activities where information could be shared, the CAO shared information about new events and projects. Both the Superintendent and CAO utilized digital and print resources as a means to disseminate information about the curriculum reform.

In relation to the first research question, I found that by utilizing various organizational learning mechanisms, the Superintendent and CAO appeared to have supported the implementation of district wide curricula reform by creating opportunities for members of the organization to acquire, share, retrieve, and uniformly interpret information for future use. As a result, given evidence of curricula adaptation, the district

possessed characteristics of a learning organization. There was evidence of new learning for the purpose of increased student outcomes.

Structures for Accountability

Findings suggested systems and structures for accountability existed in the district. While accountability is not an OLM, as defined by organizational learning research (Argyris & Schon, 1978; Popper & Lipshtiz, 1998; Schechter & Atarchi, 2014), accountability may be a product of OLMs or a means to OLMs. As a result of OLM utilization, measures of accountability exist. Or, as a result of high accountability, clarity of roles and responsibilities around acquiring, distributing, retrieving and interpreting new information existed.

This section is divided into three areas to demonstrate how OLMs and accountability collide and illustrate how the Superintendent and CAO used accountability to support reform efforts by: (1) coaching and supervision and (2) use of data. Through these structures, the Superintendent and CAO aimed to hold organizational members accountable to their work and curriculum reform.

Supervision and coaching. The Superintendent used classroom visits and assessment data as the main method for accountability. A principal reported on the implementation of the curricula reform, "It was really a top-down approach, but at the same time, it was 'We want you to have the autonomy to address it the way you want, but we also want to provide support.'" Contrastingly, one district leader said, "Teachers are significantly worried about getting in trouble with certainly the curriculum directors. Not in a bad way, but you do not want to get in trouble with the Superintendent."

Additionally, the Superintendent paired supervision with clear expectations for staff. One principal shared if the Superintendent communicates a directive, “the principals need to act upon that” and “Everything is pretty immediate, in terms of anything that's of priority that we need to know about or we need to do.” The accountability is high and expectations are clear.

The CAO, central office leaders, coaches, principals, and teachers were accountable to aligned curricula and moving communicated priorities forward. While the Superintendent observed teaching first hand, “I visit all of the schools twice a year,” the Superintendent asserted that it is the responsibility of the principal to maintain “the level of instruction that's expected at the district level.” Relatedly, in regards to implementation of yearlong plans, one principal reported that the Superintendent oversees the whole process and checks in.

The CAO and coaches also played a role in maintaining high accountability. For instance, the CAO met with all principals individually to discuss goals and priorities around curriculum. In addition to the Superintendent and CAO directly supervising, these leaders had organized systems for accountability via coaching and teacher leader support. Curriculum coaches were charged with holding teachers accountable to ensure teachers followed the curriculum maps and units. The Superintendent stated, “They're [the coaches] the ones who would see first and recognize readily if somebody was not following the year-long plans.” One principal expressed that the Superintendent is always accessible by phone, or email, she delegates responsibility to the assistant superintendent or to either the literacy or math directors**.** The Superintendent communicated that although she and the CAO are not always the direct supervisors for curricular matters,

there appears to be delegated personnel responsible for implementation. Besides the Superintendent, CAO, and other central office administrators, the personnel responsible for holding teachers accountable for curricular implementation included building-based leaders, the principal and coaches. This form of redundancy, increasing the number of people responsible for the same task, may have heightened the degree of alignment, integrity with the curriculum reform, and effective student outcomes.

Interestingly, there was dissonance between principal and director views on responsibility of curricular implementation. For example, one principal shared that the literacy director was in command of bringing district level priorities into the schools. Contrastingly, a director expressed, "I do think the role of the principal probably is the most important…. I truly rely on informing the administrators and they complete the implementation." Also, a central office administrated discussed a hierarchy of communication, which left the principal out, "Any conversations always involve the directors and sometimes instructional coaches, sometimes teachers when we know things might be coming down the pike."

Use of data. There was a strong focus on data in the district and the Superintendent was forthcoming about supporting state and local testing, "We measure success through our scores." She explained aligned curriculum and effective instruction lead to strong scores, "If we're teaching the right things and we're doing a good job and the kids are really learning what we expect them to learn, then they will do well on standardized assessments." The CAO described the power of data in the district, "Certainly that's the bottom line- in terms of public recognition and other recognition of them doing a good job." She explained that assessment has allowed the district to target

instruction and increase test scores. Similarly, central office leaders emphasized the use of data, "I look through teacher level data, grade level data, school data, and district data," and "We need to be willing to look at this data and reflect on what it's telling us about what's happening in our classroom." One teacher reported that he knows "they take the data from the quarterly exams." The CAO also noted that additional measures for accountability the district values include college acceptance rates.

In regards to research question 2, it appeared the Superintendent of Belvedere Public Schools has developed and upheld a culture of accountability in the district. The Superintendent has communicated clear expectations to members of the organization, thus delegating responsibilities to district, school and teacher leaders. Supervision and coaching models, as well as the use of data were part and parcel of the daily work in Belvedere Public Schools.

Discussion

School districts and organizations may divide responsibilities and roles, use systems and structures to facilitate work and change efforts, and leverage individual learning and knowledge to impact the knowledge of others (Popper & Lipshtiz, 1998). This study has shown how district leaders describe ways in which they support members of the organization to acquire, share, store, retrieve, and interpret information for the curriculum reform. Belvedere is a learning organization with structures in place to (1) Support clear communication of expectations (2) carry out directives (3) maintain accountability and (4) engage with curricula reform for improved student achievement.

Relative use of different types of OLMs. Information acquisition and information distribution were the most frequently used OLMs and there was a significant overlap in

the district between how information was acquired and how information was distributed. Whether the action is categorized as either information acquisition or distribution depends on the perspective of the doer or receiver of information. For example, the Superintendent may utilize collaborative opportunities to distribute information. In this case, collaboration is information distribution. On the receiving end of the Superintendent's distributed information, however, the principals or CAO may use those collaborative opportunities for information acquisition. For this study, my interpretation of information acquisition and distribution is supported by the idea that new information can be acquired and not distributed, but that new information cannot be distributed unless it is first acquired.

The Superintendent and CAO employed other OLMs in an effort to support the curriculum reform. Findings suggested that the Superintendent and CAO underutilized mechanisms for organizational memory, demonstrated by the undocumented practices throughout district documents such as the district and school improvement plans. As a result, digital and printed materials did not accurately reflect district practices and are not recorded for future retrieval.

Accountability and OLMs. While the conceptual framework, organizational learning mechanisms, does not include accountability as an OLM, mechanisms for accountability were apparent in the work of the Superintendent and CAO. One may consider accountability as an organizational learning mechanism, and a way in which that supports both organizational and individual learning. The Superintendent and CAO demonstrated systems of internal accountability as a way to address external demands of aligning curricula to the Common Core State Standards. Carnoy, Elmore and Siskin

(2003) illustrate that internal accountability is a "necessary condition for schools to be successful in responding to the pressures of external accountability systems" (p. 198). Although accountability has always been part and parcel of educational leaders' work, there has been a major shift to rely heavily on student performance data and outcomes (Bredeson & Kose, 2007). In Belvedere Public Schools the Superintendent employs accountability structures for members of the organization particularly through the use of student achievement data.

Recommendations

Data indicates the Superintendent and CAO utilized various OLMs to support districtwide curriculum reform efforts. Additionally, systems for accountability further leveraged existing OLMs to support capacity building and development of staff. While the systems in place were found to be effective, integrating the following recommendations would further promote individual and organizational learning.

The following section outlines three recommendations for district leaders supporting reform efforts: (1) Utilize school and district improvement plans as tools for consistent interpretation of priorities; (2) Maintain a shared leadership approach to instructional leadership, while also establishing principals as key instructional leaders; (3) Increase capacity of members of the organization with strong and active instructional leadership of the Superintendent and CAO.

Utilize Improvement Plans as Tools for Consistent Interpretation of Priorities

The Superintendent and CAO operationalized many OLMs to specifically acquire and distribute new information. Data shows these actions supported both individual and organizational learning. To further encourage organizational learning, it is recommended

that district leaders utilize school and district improvement plans to expand upon the existing OLMs and increase consistent interpretation of priorities. Specifically, district leaders should consider additional ways to document district priorities in a clear, articulated, and aligned manner. For optimal implementation of coherent priorities, each improvement plan should articulate measureable goals, timelines, and action steps necessary to achieve communicated goals. Details explaining the goal will help to ensure consistent interpretation among all stakeholders in the organization. Consistent and aligned improvement plans can serve as powerful tools for leaders to foster organizational memory and normed interpretations of priorities.

Establish Principals as Key Instructional Leaders

It is evident the Superintendent and CAO in Belvedere have established solid systems to support individual and organizational learning, which included a shared leadership approach as the district implemented curriculum reform. Stringer (2013) discusses the notion that capacity may also be cultivated through division of labor, sharing leadership among others in the organization. Further, sharing leadership efforts among teacher leaders and coaches may be an effective way to bolster student outcomes (Stroll, 2009). Although not a focal point of this study, it is important to note that Belvedere Public Schools utilized a shared leadership approach, designating important work among personnel in the district.

To optimize learning, however, it is recommended that district leaders continue to cultivate a shared leadership approach *and* expand the role of the principal to include more teaching and learning tasks. The current structure in Belvedere relied heavily on the instructional leadership of coaches, directors, and teacher leaders for curricular

implementation. These designated people were held accountable for distributing new information and supporting teachers with curricula matters and were perceived as key instructional leaders of district- and school-level curriculum reform efforts. Principals were less connected to the organizational learning process. Principals may be the missing link to enhancing organizational learning and increased impact of the curriculum reform.

Increase Capacity with Instructional Leadership of the Superintendent and CAO

Capacity building may translate into individual and organizational learning through the use of OLMs. It is recommended that the Superintendents and CAO actively work alongside coaches, principals, and directors to serve as the main instructional leaders. More specifically, the Superintendent and CAO are encouraged to not only supervise the work and the instructional leaders supporting the efforts, but also participate in the development and implementation of curriculum. For instance, the Superintendent may attend professional development sessions devoted to vetting year-long plans or engage with teachers during PLC meetings. Modeling as such, authentically experiencing first hand knowledge of the curriculum reform underway, and working closely with teachers are ways in which the Superintendent can more deeply promote capacity building. When superintendents and CAOs play a part in *building capacity* within the learning organization, organizational learning may increase.

Belvedere Public Schools functions as a learning organization, adapting in effort to meet various local and state demands and increase student outcomes. Facilitated by the district and school leaders, learning has occurred in the district, evidenced by shifts in curricula. For example, with processes for teacher input, year-long plans have evolved and interview data has shown that educators align with many of the communicated

district priorities such as increased rigor in the classroom. The organized systems to acquire new information and exchange ideas may have lead to these shifts in curricula. Additionally, learning has occurred through multiple modes of professional development, such as principal or director led, as well as job embedded and teacher facilitated. As a result of the presence of organizational learning mechanisms supported by the Superintendent and CAO for curricula reform, teacher practice has shifted. Organizational learning theory and OLMs may provide Superintendents and CAOs with the systems and structures to support effective teaching and learning.

Chapter 4[3]

Conclusions, Findings, and Recommendations

School districts are large and complex human organizations. Historically, school systems have struggled to establish broad and sustainable change efforts due to their size and complexity. Organizational learning theory presents district and school leaders with a valuable theoretical framework that may support effective and sustained reforms in their districts and schools. As researchers, we sought to understand how district and school leaders used organizational learning theory to implement and support curriculum reform. Specifically, the current study aimed to develop a rich understanding of (a) the systems and structures employed by a school district to support organizational learning and implement curriculum reform and (b) district practices and procedures that enhanced or limited opportunities for organizational learning.

To investigate these problems of practice, the research team employed a qualitative case study methodology across five individual studies. The studies utilized an extensive review of district documents and eighteen in person interviews with a representative sample of administrators and teachers from three elementary and one middle school. Upon analysis, the results of individual studies produced four major themes that served as the basis for our collective findings:

1. The district had established effective collaborative structures that appeared to support individual and organizational learning
2. The district had established effective collaborative structures, however, inequities in time available for professional learning between traditionally

[3] This chapter was jointly written by the authors listed and reflects the team approach of this project: Andrew M. Berrios, Tracy R. Curley, Marice Edourd-Vincent, Bobbie F. Finocchio, and Ian Kelly

scheduled and non-traditionally scheduled schools appeared to impact the use and perceived efficacy of existing organizational learning mechanisms.

3. The district had established strong leadership teams to carry the curriculum work forward, but these teams lacked strategic overlap to support effective organizational learning.
4. The district had established directors and coaches as the instructional leaders of district- and school-level curriculum reform efforts, thereby diminishing the connection of principals to the organizational learning process.

Based on these findings, the team developed a series of recommendations that aim to build on the existing strengths of the Belvedere schools and to enhance organizational learning. The recommendations included: (1) providing equitable time for professional learning across all schools, (2) building strategic connections between key district leadership teams, and (3) integrating principals into the existing teaching/learning mechanisms of the district. The following pages provide a detailed summary of each finding before concluding with the chapter recommendations and a discussion of implications for practice.

Group Findings

Integrated Collaborative Structures

Belvedere's collaborative structures support the distribution of critical organizational information from one level of the district to the next. Data analysis identified a number of primary collaborative structures used to distribute through the

organization's hierarchy. The collaborative structures at each level of the district are summarized in Table 4.1. During interviews, participants answered a series of questions that asked them to identify (a) to whom they go for information and (b) how they distribute information. Interestingly, and as Table 5 highlights, faculty meetings were the only collaborative structure identified for which there was not agreement between participants who perceived the structure as a distribution point (principals) and participants who were the target audience for that information (teachers and coaches). Agreement in perceptions between those distributing and those receiving information appears to support the notion of relatively stable distribution of information throughout the district's hierarchy, supporting the finding that the cohesive nature of the collaborative structures facilitates organizational learning.

Table 4.1

Collaborative structures in the Belvedere Schools

Level	Structure	Distribution Point(s)	Acquisition Point(s)	Agreement
Central Office	Cabinet Meeting	Superintendent Assistant Superintendent	Principals Directors	Yes
Directors/ Principals	Directors Meeting	Director	Coaches	Yes
	Faculty Meeting	Principal	Faculty	No
Teacher/ Coach	Common Planning time	Coaches/ Teachers	Coaches/ Teachers	Yes
	Professional Learning Communities	Coaches/ Teachers	Coaches/ Teachers	Yes

Individual and Organizational Learning: The Impact of Cohesion

As stated earlier, the cohesive nature of Belvedere's collaborative structures appears to support the accurate and efficient distribution of organizational information and, thereby, supported organizational learning. Participant responses, particularly at the teacher/coach level, suggest that these collaborative structures were critical to their professional learning and growth. At the teacher and coach level, the common planning time (CPT) and professional learning community (PLC) structures were identified as central to the ongoing growth and learning of teachers and coaches. In both structures, teams of teachers, coaches, and other licensed professionals worked to implement and refine curriculum, plan assessments, analyze student performance, and resolve other pressing problems of practice.

Consistent with research on human learning, these collaborative structures provide teachers and instructional coaches with socially mediated learning opportunities in communities of practice. These structures are situated in direct proximity to teaching and learning and, therefore, represent organizational learning mechanisms that are of critical importance to the implementation and efficacy of district curriculum reform priorities. While these collaborative structures were present and identified by all participants, transcript analysis uncovered a difference in the perceived efficacy of these structures by teachers and coaches working in schools with traditional schedules and those working in schools with non-traditional schedules.

Inequitable Time for Professional Learning

Our analysis indicated that (a) the Belvedere Schools took intentional and strategic measures to deploy an integrated system of collaborative professional structures throughout the district's hierarchy; (b) these structures appeared to have a positive impact

on individual and organizational learning; and (c) there were significant differences in terms of time available for and, therefore, access to these professional learning opportunities. As we shall see, the collaborative structures employed in Belvedere represented a strong foundation for organizational learning while, at the same time, presented with clear opportunities for growth.

Time and equitable opportunities for professional learning. While data indicated that Belvedere had deployed an effective system of collaborative structures that supported the distribution of information and organizational learning, there were disparities across the district in terms of the time available for and, therefore, the ability to access the collaborative structures. Two of the four participating schools operated non-traditional school schedules. These non-traditional school schedules included additional time on learning for students as well as additional collaborative time for teachers and other professionals. The other two participating schools operated traditional school schedules that did not include additional time on learning for students or collaborative time for teachers and other professionals. As we shall see, the variance between school schedules appeared to be the primary cause of differences in both the implementation and perceived efficacy of common planning time and professional learning communities.

Common planning time (CPT) was the organizational learning mechanism most impacted by the differences in school scheduling. Teachers and instructional coaches in schools operating traditional schedules reported having CPT once per week while teacher and coaches in schools operating non-traditional schedules reported having CPT daily. Each CPT was forty-five minutes in duration which, over the course of a 180 day school year, created a significant discrepancy in time afforded to professionals for collaboration

and learning. Further exacerbating this inequity, schools operating non-traditional schedules also afforded teachers and instructional coaches two hours of release time each week. Over the 180 day school year the cumulative impact amounted to approximately 26.25 hours of common planning time and collaborative work time for teachers in traditionally scheduled schools and approximately 205 hours of common planning time and collaborative work time for teachers in non-traditionally scheduled schools. Put simply, teachers and instructional coaches in traditionally scheduled schools appeared to access roughly 13% of the common planning and collaborative learning time of their colleagues in non-traditionally scheduled schools. This discrepancy manifested in (a) differential performance on standardized tests and (b) differing teacher perceptions of efficacy between participants across the two school scheduling models

Student achievement and time for professional learning. State standardized test results were collected and analyzed to gain a general understanding of student performance in traditionally scheduled and non-traditionally scheduled schools. Four years of data were acquired for three of the four participating schools.

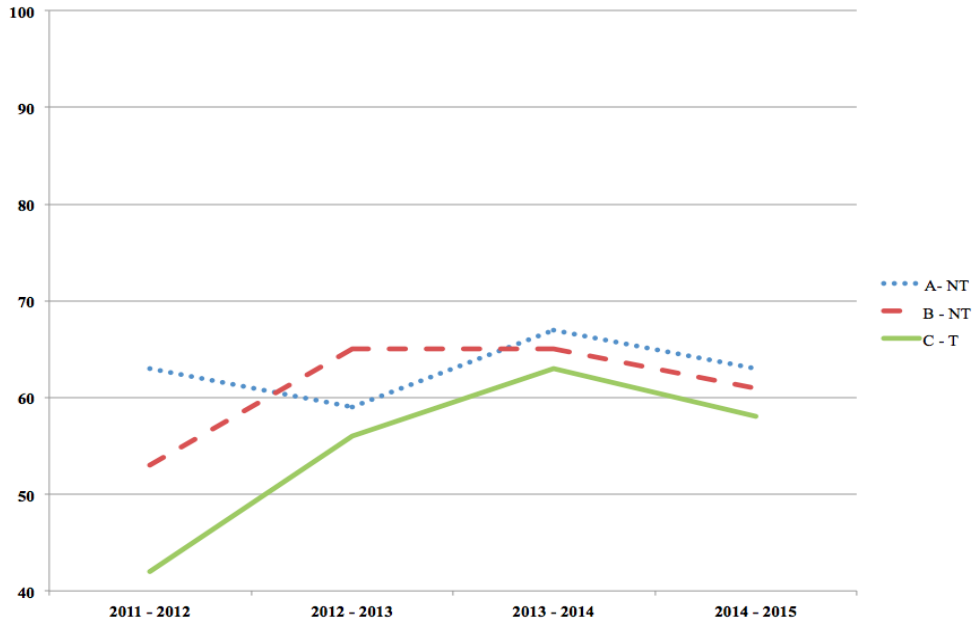

Figure 4.1: District Mathematics MCAS Performance

The fourth was excluded from the comparison due to the fact that it served different grade levels than the other three schools. Two of the elementary schools in the comparison were non-traditionally scheduled and the third was traditionally scheduled. Figures 4.1 and 4.2 summarize four years of student performance data in ELA and Math. Dashed lines represent the performance of non-traditionally scheduled schools, solid lines represent the performance of the traditionally scheduled school.

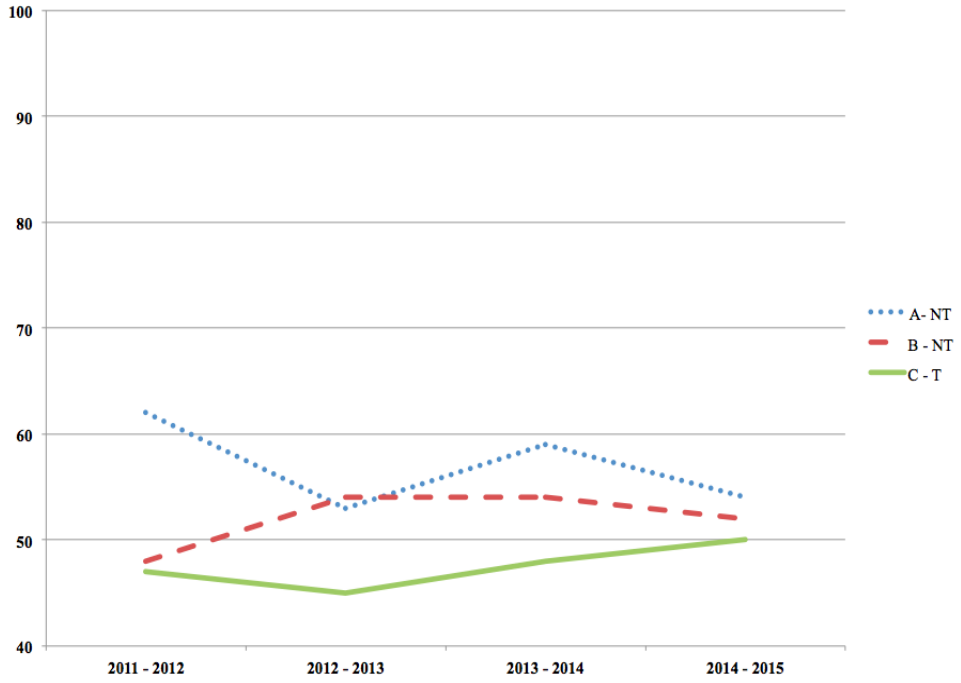

Figure 4.2: District ELA MCAS Performance

While it was not possible to draw a direct correlation between increased student performance and the additional professional opportunity to learn in non-traditionally scheduled schools, it was worth mentioning the difference in performance. Across four years of data on two standardized test measures the non-traditionally scheduled schools outperformed the traditionally scheduled schools.

Teacher/coach perceptions of efficacy. Beyond differences in student performance, teacher and coach perceptions of efficacy varied significantly between traditional and non-traditionally scheduled schools. One central office administrator recalled their experience in a non-traditionally scheduled school, "I was in a non-traditionally scheduled school, so we had more time, more consistent time to be able to do those things [work in collaborative teams]." Consistent with the notion that affording more time for professional learning is beneficial, one principal qualified the difference as such, "This particular school has had a major turnaround because we, as a group with

non-traditional schedules, we're a different school." Both administrators expressed perceptions of advantage in the non-traditionally scheduled schools and spoke to the belief that the additional time enhanced school performance.

Consistent with administrators, classroom teachers articulated perceived advantage and perceived benefits to school performance. A teacher who has worked in schools with both scheduling models made a poignant comparison, "In our school we have a 45-minute block every day to common plan within our grade level team because of the non-traditional schedule. Previously I had come from a school that we were lucky to get 45 minutes a week. Even then it was often getting taken over by data meetings or you know coaches and stuff. We have a lot of ownership. We do a lot of creating." This teacher's comments referred to (a) the advantage in terms of opportunities to learn in communities of practice through common planning time every day and (b) the benefits in terms of ownership and creativity.

Teachers and coaches in traditionally scheduled schools indicated that the scheduling inequities created a situation in which (a) they were not able to use the collaborative structures effectively due to time constraints, (b) the inequity acted as a basic limitation in their ability to effectively support students, and (c) tension between professionals with and without additional student and professional learning time was common. In their commentary, one professional in a traditionally scheduled school described the situation as such, "They all had an extra week [referring to additional time for student and professional learning]. Now you have in-district arguments amongst teachers. You're comparing us with them and they had an extra week and they get extra time in their day. They can do more with their kids than we can. There is friction in the

district with that." This professional's sentiments effectively captured those of other professionals in traditionally scheduled schools and reflected the ways in which this inequity may have had a negative impact on individual and organizational learning.

The district developed and implemented collaborative structures to support organizational learning relevant to ongoing curriculum reform efforts. While these collaborative structures were found consistently across the district, their implementation and perceived efficacy varied significantly between traditionally and non-traditionally scheduled schools. Schools that afforded teachers additional time to use the collaborative structures appeared to outperform schools that did not provide this time. Through our analysis of the collaborative structures used by the district, it also became evident that opportunities for individual and organizational learning may have been hindered in situations where the collaborative structures lacked strategic connections and overlap.

Collaborative Structures and the Need for Strategic Overlap

The collaborative structures employed by the Belvedere schools represented the primary mechanisms by which the district promoted professional learning relevant to curriculum priorities. As discussed earlier, these collaborative structures, particularly at the teacher/coach level, were perceived as effective professional learning mechanisms. While they were regarded as such, perceptions of efficacy did not explain the broad discrepancies between professional perceptions of district curriculum priorities within and across the hierarchical structure of the district. Further analysis of participant interview data uncovered that, while these mechanisms were effective in many ways, key collaborative structures at the district and central office level lacked strategic overlap that

may have contributed to the lack of clarity around district priorities and, as such, had a deleterious effect on organizational learning.

The superintendent held monthly meetings with central office staff, building principals, and curriculum directors and indicated that this collaborative structure was one of the primary mechanisms used to distribute information to district leaders. Moving from the superintendent's meetings, curriculum directors and principals held meetings that either (a) distributed the information from the superintendent's meeting to their respective level of the organization or (b) processed and interpreted the information from the superintendent's meeting. In either situation the distribution and/or interpretation of this critical organizational information took place in isolation from other leaders. The actions taken by these discrete groups to work with and distribute information independently created a situation in which these key OLMs missed opportunities to strategically overlap as teams and process the district information in a broader community of practice. Figure 4 captures the existing structure of the district's OLMs while at the same time hi-lighting the missed opportunities for strategic overlap between the OLMs.

Areas A, B, and C of the Venn diagram each represent one of three collaborative teams that operated as OLMs at the central office level (ELA curriculum meetings, STEM curriculum meetings, and principal meetings). In each area, a key group of district leaders, independent of the other groups represented by areas A, B, and C, distributed or interpreted information acquired during the monthly superintendent's meeting. Here we saw the missed opportunities for more strategic and intentional connections between these OLMs.

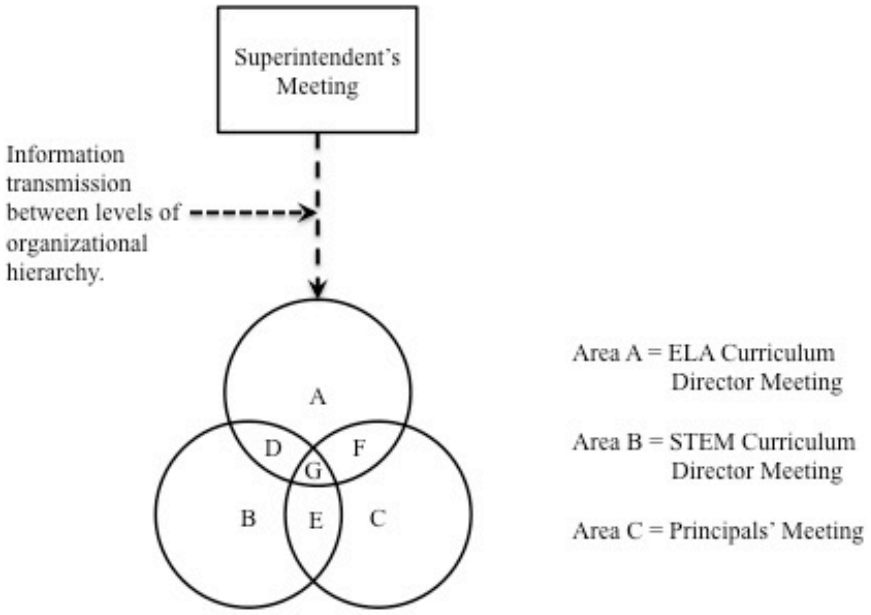

Figure 4.3: Strategic connections for information distribution and interpretation

As seen in areas D, E, and F of Figure 4.3, there were situations in which key district leaders distributed and/or interpreted information together but these overlapping areas of OLMs were not systematically employed across the district. Area D represents the overlap of math and ELA instructional coaches that happened informally at the building level. Area E represents the overlap of principals and math coaches while area F represents the overlap between principals and ELA coaches. The interactions represented in areas D, E, and F are all informal OLMs that may or may not, depending on the composition of building and practices of principals and coaches, operate in all schools.

Area G represented the point of strategic overlap and connection that was not identified by any participant as an operational OLM within the district. Area G represents the possibility for a strategic and intentional overlap between the three leadership teams and, as we will discuss in our recommendations, an opportunity to increase the clarity of

critical district information and agreement between stakeholders on district curriculum priorities.

Disconnect Between Teaching/Learning and Building Principals

Through the collection and analysis of data two distinct operational task systems were identified in the Belvedere Public Schools. These task systems, for the purpose of this discussion, are referred to as (1) management and operations and (2) teaching and learning. Management and operations functions included budget, policy, scheduling etc., while teaching/learning functions included all aspects of curriculum development, curriculum implementation, and students' achievement. Participants indicated that the superintendent and central office administrators straddled both domains and coordinated primarily with building principals on the management and operations of the district. Curriculum directors, instructional coaches, and teachers were consistently identified as the professionals responsible for the teaching and learning task systems. While the structure of district responsibilities appeared to support individual and organizational learning in Belvedere, two primary obstacles to improving organizational learning appear to exist.

The first obstacle to improving organizational learning manifested in the operational task systems within the district. This arrangement of management/operations and teaching/learning task systems created a situation in which participants perceived principals to be disconnected from the teaching/learning task systems of the district. When teachers and coaches were asked to identify to whom they go for (a) information relevant to the current curriculum reform and (b) expert professional advice, building principals were not identified. Instead, classroom teachers identified job alike colleagues

as their primary sources, while instructional coaches identified curriculum directors. These data points illuminated the composition of the teaching/learning task system of the district and underscored the extent to which building principals were perceived as separate from those systems. While the disconnect between building principals and the teaching/learning mechanisms of the district were perceived by participants from across the district's hierarchy, those perceptions were reinforced by structural processes and procedures within the district.

More specifically, this structural division begins centrally and, as a result, are reflected at the building level. As illustrated in Figure 4, district leaders move away from the superintendent's meeting into job-alike or department-specific meetings that served to distribute and/or interpret that information. As coaches came together with curriculum directors at this level, principals were not present. Conversely, building principals convened meetings as a team to process and interpret the same information without curriculum directors or instructional coaches present. This may have contributed to the perception that principals were not a part of the curriculum director/curriculum coach instructional team and, therefore, disconnected from the teaching and learning task systems of the district.

The second obstacle to improving organizational learning manifested in the building based task systems that appeared to reinforce (a) the meeting structures at the district level and (b) the perceived disconnect between principals and teaching/learning task systems. This perception was rooted in data from transcripts indicating that instructional coaches were more involved when it came to providing support for teachers' professional development and learning. Instructional coaches and classroom teachers

indicated that coaches facilitated weekly common planning time, contributed to professional learning groups, and coordinated with directors to plan/facilitate monthly professional development. Described by principals as anything from "point people" to "gatekeepers" with respect to curriculum information and expertise, they were perceived as responsible for the performative aspects of the teaching and learning task systems at the building level. From the teachers' point of view, coaches provided instructional leadership, while the principals assumed responsibility for the management and operations task systems.

Interestingly, teacher perception of principal involvement with teaching and learning task systems contradicted principal perceptions of their own involvement in teaching and learning. As one principal explained,

> Formally, I meet with my literacy and math coaches, and my assistant principal every week, so that's an opportunity for them to fill me in on their weekly meetings and then also for me to check for understanding, to make sure that we're all on the same page when I come back from cabinet meeting or an all-admin meeting.

This data indicated that teachers may not possess information about how coaches interacted and communicated with building principals and other administrators that meet, weekly, to "strategize around how to support the coach and how to support the teachers." Regardless of the practices of principals and coaches, teachers appear to perceive a division of task systems that positions instructional coaches as a primary resources for information and expertise relating to teaching and learning.

The Belvedere Public Schools have developed and deployed effective mechanisms for collaboration, leadership, and enhancing the practice of teachers and coaches throughout the district. With minor adjustments to these practices and procedures, the Belvedere schools can leverage established strengths to further support organizational learning and, potentially, enhance the implementation of curriculum reforms. In an effort to build on Belvedere's existing strengths and extend organizational learning, we move the following recommendations.

Recommendations

Data indicated that the Belvedere schools utilized a number of integrated systems and structures to support professional learning in service of ongoing district curriculum reform efforts. While these integrated systems were found to be effective in many ways, findings also indicated specific opportunities for growth that, if leveraged, may enhance opportunities for individual and organizational learning across the district.

Ensure Equitable Time for Professional Learning Across All schools

Opportunities for socio-cultural learning in communities of practice are central to learning. At the building level in Belvedere, common planning time (CPT) and professional learning communities (PLC) provided this research based learning context and were perceived by teachers and coaches as central to their professional learning. Schools participating in the current study operated both traditional and non-traditional school schedules. Non-traditional schedules afforded additional time for student and professional learning and, therefore, created inequities in opportunity to learn for students and staff. It is our strong recommendation that the district look for creative solutions that

would provide schools and professionals across the district with equitable access to the collaborative professional learning structures deployed in Belvedere.

At the time of this study, teachers and coaches in traditionally scheduled schools had access to one CPT block per week (26.25 hours per year), while teachers and coaches in non-traditionally scheduled schools had access to one CPT block per day (135 hours per year) and, in addition, two hours of release time for collaborative work each week (70 hours per year). The cumulative impact of these inequities on opportunities for professional and, therefore, organizational learning cannot be understated. To make the comparison clear, this discrepancy creates as situation in which professionals in traditionally scheduled schools access 12.8% of the total common planning and collaborative learning time as their colleagues in non-traditionally scheduled schools.

Beyond limitations to opportunity to learn, this significant inequity in access between schools creates friction amongst professionals and feelings of helplessness in teachers and coaches working in traditionally scheduled schools. Participants in traditional schools expressed frustration that they were compared to colleagues and schools who had clear advantages over them. We believe that in finding a way to provide equitable opportunities for professional and student learning across the district, Belvedere will enhance organizational learning and support collegiality across the district.

Establish Strategic Overlap Between Key Leadership Teams

Belvedere has implemented effective collaborative structures and leadership teams throughout the district's hierarchy. Through our data collection and analysis, however, it became clear that a subset of the key leadership teams were not connected in strategic, intentional ways that support the effective interpretation and accurate

distribution of key organizational information. More specifically, we found missing connections between meetings that included curriculum directors and coaches, and those that included building principals. Data indicates that this disconnection may result in disparate perceptions of district priorities throughout the district. As such, it is our recommendation that the district establish these connections by bringing curriculum directors, instructional coaches and building principals together, regularly at the district level, to discuss and address issues relevant to the district's curriculum priorities. In doing so we project that the district would (a) increase clarity about district priorities throughout the district; (b) elevate the efficacy of existing collaborative structures; and (c) as we will discuss later, connect building principals more closely to the teaching and learning mechanisms in Belvedere.

Increase clarity around district priorities. The broad range and limited alignment of perceived district priorities identified by participants in the current study reflected the breadth of individual interpretations of Belvedere's primary strategic curriculum reform initiatives. Information moves through organizations via individuals and groups of individuals. As organizational information moves among and between groups, it is interpreted based upon individual mental models of the district's priorities. As such, individual interpretations are not uniform and can alter, for better or for worse, the information before it is distributed further into the organization. This alteration of information is exacerbated as it is interpreted by and passes through additional individuals. This is analogous to the broken phone game and presents a logical

explanation for the discrepancies between participants' identification of district priorities.

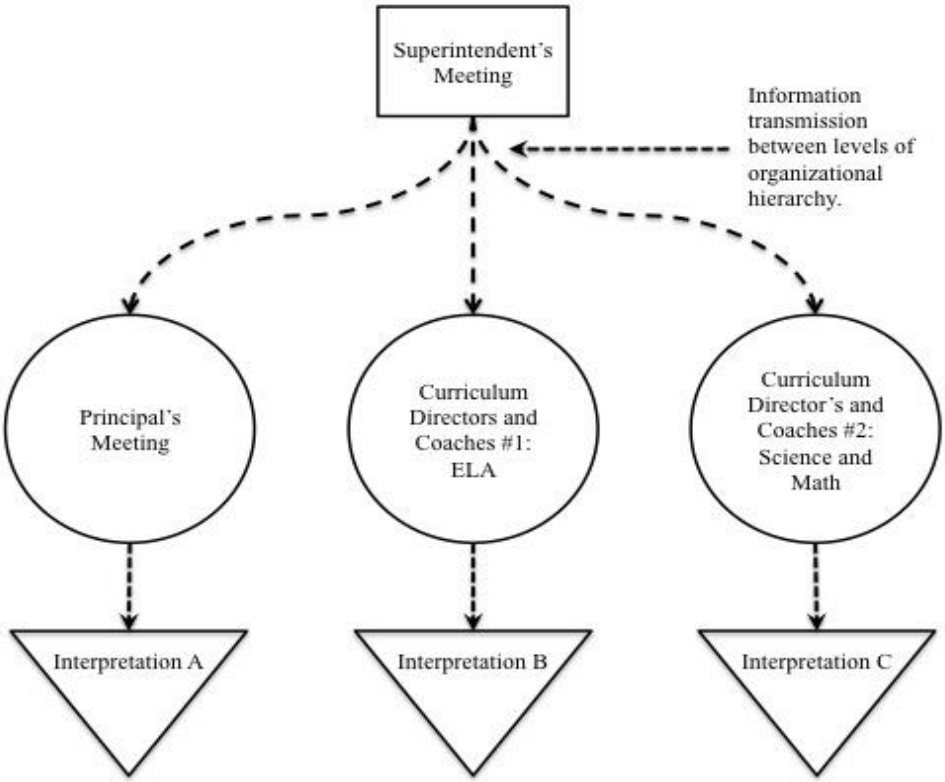

Figure 4.4: Structural influences on information interpretation.

As described by participants, the current leadership structure (See Figure 4.4) situates the superintendent's meeting as a focal point for the distribution of key organizational information. From that meeting, participants indicated that the information acquired during superintendent's meetings is then distributed via (a) meetings with instructional coaches from across the district, and (b) meetings between building principals. This structural arrangement between teams, as seen in Figure 5, creates multiple venues for the interpretation of critical information regarding district priorities and, as such, sets the stage for a higher degree of variance further into the human structure of the district.

Considering the impact of isolated interpretations of organizational information on the fidelity of that information as it is disseminated through the organization, the importance and impact of shared interpretations comes into focus. Connecting curriculum directors, instructional coaches and building principals to process, interpret, and develop a shared understanding of district priorities (organizational information) before distributing that information further into the district is an important step that may increase clarity and consistency around the district's strategic curriculum initiatives.

By bringing these key instructional leaders together to building shared understandings and interpretations, Belvedere may create a situation in which a continuous interpretation of Belvedere's strategic initiatives is more likely across individuals and groups throughout the district. In addition to this primary benefit, the district will also further its support of and coherence to the existing system of collaborative structures at the teacher/coach level.

Elevating the efficacy of existing collaborative structures. Common planning time (CPT) and professional learning communities (PLC) were the primary collaborative structures for professional learning identified by teachers and coaches. Our evidence suggested that these meetings were productive and support (a) individuals with their practice and (b) the district in moving curriculum reform priorities forward. It is our belief that by aligning the interpretation of district curriculum priorities between curriculum directors, instructional coaches, and building principals the district stands to enhance the existing efficacy of CPT and PLC structures.

When discussing the collaborative structures in which they distribute and acquire organizational information, curriculum directors, principals, and coaches described team

meetings in which they (a) bring and share important organizational knowledge and perspective, (b) work to interpret this shared pool of organizational information and knowledge, and (c) use this shared pool of organizational information to make decisions that influence their collaborative work at the building level. These behaviors are consistent with socio-cultural theories of human learning within communities of practice (Brown, Collins, & Duguid, 1996; Kimbell & Hildreth, 2008; Kolb, 1984; Lave & Wenger, 1991; Orr, 1997; Vygotsky, 1978) and have the potential to greatly enhance individual and organizational learning. The pressing issue, here, is that these three teams use a pool of information to inform their thinking and decision making that is naturally limited by the meeting structure currently employed by the district. Figure 4 captures the structure and portrays the isolated nature of these three teams of instructional leaders.

Each team's ability to process organizational information and make effective operational decisions is limited by the absence of rich organizational knowledge embedded in the other two teams. As a result, each of the three teams operates at less than optimal capacity and individual members of those teams carries structurally limited interpretations of district priorities and district needs back to their buildings. These narrow interpretations of district information and priorities are transferred back to each building and used to inform the professional collaboration that occurs in CPT and PLC structures. Here we see the direct link between district instructional leaders' mental models and the potential efficacy of building level CPT and PLC structures.

To further enhance the efficacy and rigor of the CPT and PLC structures, we believe that the district must bring together curriculum directors, instructional coaches and principals for the purpose of building shared mental models of district curriculum

priorities. Doing so may enhance CPT and PLC work by ensuring coherence within and between professional teams and, consequently, ensuring more cohesive and valuable feedback/organizational information loops back from the CPT/PLC structure to the instructional leadership team. As a result, these instructional leadership teams would have the opportunity to enhance their work to identify critical issues relevant to teaching and learning across the district.

Integrate Principals into the District's Teaching/Learning Mechanisms

Principals in the Belvedere schools represent an integral part of the district's task systems. As we discussed earlier, building principals are perceived as an instrumental part of the management and operations task systems that support teaching and learning. Creating the conditions for professional and organizational learning is important, but the role of building principals must be perceived more broadly in Belvedere to include the role of instructional leader. Schools in which principals operate as instructional leaders are more likely to provide successful opportunities for professional and organizational learning (Mitchell & Sackney, 2006; Schecter & Qadach, 2012). With this in mind, we make our final recommendation to strategically integrate the building principals into a more direct and obvious role in the teaching and learning task systems of the district.

Strategic is a key qualifier in the articulation of this recommendation. The management and operations of the district are in good working order and building principals should not be removed from their key roles within those task systems. With minor adjustments to existing systems and structures on the teaching and learning side of the organization, the integration we recommend can be accomplished. More specifically we believe that by (a) combining district level meetings between curriculum directors,

instructional coaches, and building principals and (b) ensuring that all principals meet with instructional coaches on a regular basis at the building level, the district will enhance its support of professional and organizational learning.

As suggested earlier, bringing curriculum directors, instructional coaches and building principals together to process and build shared mental models of critical district information will potentially support greater clarity around district priorities throughout the district and enhance the existing efficacy of PLC/CPT structures. Additionally, making this structural adjustment clearly ties principals to the teaching and learning task systems of the district. Centrally connecting district level instructional leaders supports the notion that the district should ensure that individual principals connect with instructional coaches at the building level on a regular basis.

In some instances, data indicated that principals in Belvedere make it a practice to meet regularly with the instructional coaches in their buildings. Doing so provides a critical opportunity for individual and organizational learning in that (a) the principal was able to check for understanding and alignment around district curriculum priorities and (b) the principal was able to access important organizational information about the implementation and efficacy of the ongoing curriculum reform efforts. In buildings where this is not the practice of principals, opportunities for district alignment and organizational learning are missed. In prescribing this practice the district ensures that principals are more closely tied to and informed about the teaching and learning task systems within the district and, consequently, are better equipped to engage in those teaching and learning systems.

Limitations

The development and implementation of the current study was limited by a number of factors and readers should carefully consider the results and their ability to be generalized within the context of the following limitations.

Participant sample size represents a significant limitation to the current study. The study included semi-structured in person interviews with eighteen individuals representing central office administrators, principals, directors, coaches, and classroom teachers. The sample size represents a small portion, approximately 3.3%, of the district's overall teaching and administrative work force. While the in-depth interviews provided a rich perspective on organizational learning within the district, a broader sampling of participants would have added validity and supported generalization of results. Future research including a larger professional sample would support results that are more easily generalized.

The data collection and analysis ability of the current study was limited due to the time constraints of the research project. Due to time limitations, the research team was unable to employ direct observations of organizational learning mechanisms within the district. This data collection method would have complemented data collected through archival document review and in-person interviews thereby providing a more thorough and rich analysis of organizational learning.

Researcher bias must also be taken into account when considering the results of this study. While many steps were taken to mitigate the influence of potential bias on the part of the research team, the composition of the team may have influenced the results. At the time of the study, four members of the research team were building principals and one

member was a central office administrator. A more diverse research team that included classroom teachers and/or non-education professionals may have provided additional and valuable perspective on organizational learning within the district.

It was beyond the scope of this study to explore the influence of the district's organizational learning mechanisms on teacher and coach perceptions of equity and, therefore, their perceptions of district values and beliefs about the professionals they employ. It was clear in many interviews with professionals in traditionally scheduled schools that they believed the district did not value them in the same way they valued professionals in non-traditionally scheduled schools. These perceptions are subtle and represent affective barriers to individual and organizational learning. Future inquiry into disparities in opportunities for professional learning would strengthen the existing research as it relates to organizational learning in school settings.

Conclusion

The current study explored how one district leveraged organizational learning theory to implement and support ongoing curriculum reforms. Through a qualitative case study methodology, the research team conducted an extensive review of archival documents and in-depth in person interviews with eighteen professionals in Belvedere. Participants included the superintendent, central office leaders, principals, instructional coaches, and classroom teachers.

Through the collection and analysis of data, it became clear that the Belvedere Public Schools employed an integrated system of organizational learning mechanisms (OLMs) that appear to support both individual and organizational learning. These OLMs included print/digital resources, human information networks, and collaborative teaming

structures. While these OLMs appeared to be effective, the research team identified specific recommendations that may enhance overall organizational learning. These recommendations included: (1) Ensuring equal time for professional learning across the district's schools, (2) Establishing strategic connections between key human organizational learning mechanisms, and (3) the strategic integration of principals into the teaching and learning organizational learning mechanisms of the district.

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Appendix A
Superintendent/ Chief Academic Officer Interview Protocol

Position:
Years of experience in Education:
Years of experience in current role:

1. What are the district's major curriculum priorities/initiatives?
Probe: Can you tell me specifically about the UbD curriculum reform?

2. What is the district's plan for addressing those priorities?

3. How do you identify district priorities around curriculum?

4. How do you communicate district priorities around curriculum to central office leaders? Principals? Teachers?

5. How do you know if central office leaders and principals understand the goals and priorities associated with the UbD curriculum reform?

6. How Do you check that district's goals and curriculum priorities are implemented?
Probe: How do you check?
Probe: How do you know if there is alignment between district and school priorities in regards to the UbD curriculum reform?

7. How is information about district goals share with principals? Central office? Teachers?

8. With whom, other than your staff, do you regularly communicate information about school and district curriculum priorities?

9. How do you assure all information about UbD and curriculum resources are accessible for central office leaders? Principals? Teachers?
Probe- How do you know if the methods are effective?

10. How do you know whether the leaders that need the information about the curriculum reform actually get it?

11. What do you do if you realize there is a communication breakdown?

12. Are there any other documents you think I should look at?

Appendix B
Central Office Interview Protocol

Name:
Position:
Name of District:
Years of experience in Education:
Years of experience in current role:

Optional Questions
Gender:
Race:
Age Span: ie. 20-30, 31-40, 41-50, 51-60, 61-70

Question 1: Tell me about how you get information before you select a curriculum reform initiative (UbD)?
Probe: Do you feel you get the information you need?
Probe: Is it enough information or too little?
Focus: Information acquisition

Question 2: What are the district's major curriculum priorities/initiatives?
Probe: Can you tell me specifically about the UbD curriculum reform?
Focus: Organizational memory

Question 3: How did you select this curriculum reform initiative (UbD)?
Focus: Information acquisition

Question 4: How do you inform principals about this curriculum reform initiative (UbD)? How do you make sense of it? How do you inform teachers?
Probe: How do you get the information you need to support English Language Learners?
Probe: How do you get the information you need to support Students With Disabilities?
Focus: Information acquisition, information interpretation

Question 5: How do you provision before you distribute the information to the principals? How do you provision before you distribute the information to teachers? (IA, ID, II, OM)
Focus: Information acquisition, information distribution, organizational memory

Question 6: How do you present it to principals? How do you distribute it (curriculum reform initiative/UbD) to schools? How do you present it to teachers? How do you distribute it?
Focus: Information distribution

Question 7: What skills do you feel principals need to lead the implementation of a curriculum reform initiative (UbD)? What skills do you feel teachers need?
Focus: Information acquisition, information interpretation, information interpretation, organizational memory

Question 8: So how do you build effective skills for principals around this curriculum reform initiative (UbD)? How do you build effective skills for teachers?
Focus: Information acquisition, information distribution

Question 9: How does that equate to what is offered to the principals? How does that equate with what is offered to teachers? (OM, IR)
Focus: Organizational memory, information retrieval

Question 10: How do you attempt to ensure clarity of communications and expectations around curriculum reform (UbD) to schools?
Focus: Information interpretation, information distribution

Question 11: How do you gather evidence of your own progress when working with schools? (OM, IR)
Focus: Organizational memory, information retrieval

Question 12: Do you have any documentation that would support what you just shared?
Probe: Do you have any documentation related to UbD?
Focus: Information retrieval

Appendix C

Principal Interview Protocol

Name:
Position:
Name of District:
Years of experience in Education:
Years of experience in current role:

Optional Questions
Gender:
Race:
Age Span: ie. 20-30, 31-40, 41-50, 51-60, 61-70

Question 1: What are the district's major curriculum priorities/initiatives?
Focus: Theory of action, theory in use, task systems, mental models

Probe: Can you tell me specifically about the district's implementation of Understanding by Design (UbD)?

Probe: Where might I or someone else find evidence of these initiatives?

Question 2: Who determined the district's curriculum priorities and what processes/structures were utilized to set those priorities?

Question 3: And how does central office communicate district priorities around curriculum initiatives?

Probe: Who, in particular, is responsible for communicating those priorities?

Question 4: What is the district's plan for addressing those priorities?

Question 5: What specific methods does your superintendent employ to communicate her plan of action associated with those intended goals/priorities?

Question 5a: And how about the Executive Administrator for Curriculum and Assessment? What is her role in communicating district priorities around curriculum?

Question 6: Once district priorities are communicated, how do you make sense of what's important?

Probe: What steps, if any, do you take to make sure you and superintendent are on the same page?

Question 7: How do you communicate your understanding of district priorities around curriculum back to the superintendent? How does she know whether you're on the same page?

Question 8: In turn, how do you communicate that same understanding to your staff?

Question 9: What methods do you use at the building level to check for teacher understanding of the priorities?

Probe: What steps do you take to ensure you and your staff are on the same page?

Question 10: What are the school-based priorities around curriculum?

Question 11: What are your plans for addressing them?

Question 12: What school-based structures exist to support professional development around the curriculum initiative?

Probe: What role do you play in and around these structures?

Question 12: What professional learning and/or development has to take place in order for priorities to be addressed?

Probe: At the district level?
Probe: At the school level?

Question 13: What role does your superintendent play in the professional development of school principals?

Probe: Identify specific actions of your super.

Question 14: In turn, what role do you play in the professional development of your staff?
Specifically, how do you support the development of your staff in terms of the curriculum reform efforts?

Probe: Identify specific practices, actions, activities.

Question 15: What superintendent actions do you find most beneficial in your learning both personal and professional?

Question 16: As you consider your actions, which do you think contribute most to the development of staff? How do you know?

Question 17: In what ways have you grown/developed since the start of the district's curriculum reform efforts?

Question 18: In what ways do you believe your staff has grown/developed in terms of the reform efforts? How do you know?

Question 19: In general, and even outside of the efforts around curriculum reform, how does the superintendent get important information to principals?

Question 20: How do you get important information to your staff?

Question 21: Where does documentation of this reform effort live?

Probe: Where is information stored at the district level?
Probe: At the school level?
Probe: Where can people go to access new and old information?

Question 22: What role, if any, does your superintendent play in making sure information is accessible to staff? What role do you play?

Appendix D
Teacher Interview Protocol

Name:
Position:
Years of experience:
Years of experience in current role:

Optional Questions
Gender:
Race:
Age Span: ie. 20-30, 31-40, 41-50, 51-60, 61-70

Question 1: What are the district's major curriculum priorities/initiatives?

Probe: Can you tell me specifically about the district's implementation of Understanding by Design (UbD)?
Probe: How do you define UbD?

Question 2: What is the district doing to support the curriculum priorities that you mentioned?

Question 3: What opportunities do you have to engage in these curriculum priorities/initiatives?

Probe: In the development and planning of curriculum?

Probe: In training that is relevant to the curriculum changes?

Question 4: What opportunities do you have to learn about these curriculum priorities/initiatives?

Probe: If specific professional development opportunities are mentioned, ask the participant to describe:
Probe: Who facilitated the session(s)?
Probe: What did you do during the session(s)?
Probe: What did you learn as a result of the session(s)?

Question 5: Are you provided opportunities to attend workshops and training sessions outside of the district? (Information acquisition)

Probe: If no, what type of training interests you most?
Probe: If yes, what kinds of workshops and training have you attended?
Probe: Does the district expect you to share information with your colleagues? (Information distribution)

Question 6: When you need information about curriculum priorities/initiatives, where do you go to get it?

Probe: Are there specific resources or people in the district who you can go to for support?

Question 7: Who do you seek out for expert professional advice? (Information distribution, organizational memory, information retrieval)

Probe: When considering who you reach out to, what criteria inform your choice?

Question 8: Are you provided opportunities to work collaboratively with colleagues? (Information distribution)

Probe: If so, what are those opportunities?
Probe: How do you use that time?

Question 9: How does the district get information about curriculum priorities/initiatives to you?

Probe: How do those work for you?
Probe: Are there ways that you prefer to get information?

Question 10: What is happening at the school level to address district priorities around curriculum?

Question 11: With whom, other than your staff, do you regularly communicate information around school and district priorities?

Question 12: Would you be willing to provide me with a few lesson plans and teacher generated assessments for review in our study?

Question 13: What, if any, opportunities do you have to provide your input and feedback to the school and district on curriculum reform efforts?

Probe: Do you believe that your feedback is accounted for and used in the ongoing curriculum reform efforts of the district?

Question 14: How have you used the year long plans and UbD units on your practice?

Probe: What factors drive your decision making in the implementation of these units?

Question 15: How would you rate the quality of the UbD units?

Scale: 1 – Low quality 3 – Reasonable quality 5 – High quality

Probe: When you consider the quality of the UbD units of study, what criteria factor into your rating of quality?

Appendix E

Consent to Participate in Interview
Boston College Lynch School of Education
Informed Consent for Participation as a Subject in the Research Study

District and School Leaders Methods of Implementing and Supporting Curriculum Reform

Researchers: Andrew M. Berrios, Tracy R. Curley, Marice Edourd- Vincent, Bobbie F. Finocchio, and Ian Kelly

Why have I been asked to take part in the study?

- Because you are a district leader, central office administrator, school leader or teacher over the age of 18
- Because you work with curriculum reform in schools

What do I do first?

- Before agreeing, please read this form.
- Before agreeing, please ask any questions you may have.

What is this Study about?

- What methods district and school leaders use to create and support curriculum reform.

Who will take part in this Study?

- **Approximately 30** school leaders involved in curriculum reform (i.e. superintendents, curriculum development administrators, school principals, and teachers) from Belvedere Public Schools.

If I agree to take part in this Study, what will I be asked to do?

1. Answer questions related to your experience with curriculum reform in your district for approx. 60 minutes.
2. If you do not wish to answer a question, you may choose to skip it.
3. Allow the *confidential* * interview to be recorded.
4. If you do not wish to have your answers recorded, please inform the interviewer, and your answers will not be recorded.

**Note: None of the Study participants will be identified by name. The recording will also be password protected in a secure research database. The recording will also be destroyed, without record, after May 01, 2016.*

What are the risks to being in the Study?

- There is a very small but potential risk that some school leaders and administrators, though unnamed, may be easily identified due to the uniqueness of their job title. This risk is minimal for teachers who participate in this Study.
- **There may be unknown risks at this time.**

What are the benefits to being in the Study?

- Information gathered in this Study may help administrators improve curriculum reform.

Will you be paid for participating in this study?

- There will be no payment to participate in this Study.

Will I be paid for conducting this study?

- There is no cost to you to be in this research study.

How will things I say be kept private?

- All records (physical and electronic) collected during this study will be kept private. All interview transcripts and physical research materials are maintained in a locked office with the principal investigator. All electronic materials are stored in a secure database provided by Boston College.
- In any report published as a result of this study, the research team will not include any information that will make it possible to identify you. Doing so involves the use of pseudonyms for all individuals and schools participating in this study. The research team also considers carefully the use of direct quotes and the formats in which data are reported to further ensure confidentiality of participants.
- All electronic information will be coded and secured using a password-protected file. All members of the research team Ian Kelly-Principal Investigator (PI), Andrew Berrios, Bobbie Finocchio, Marice Edouard-Vincent, and Tracy Curley will have access to the audio recordings. After May 1, 2016, all audio files will be permanently deleted by Ian Kelly, Principal Investigator.
- Only the research team will have access to information you provide. The Institutional Review Board at Boston College and internal Boston College auditors may review the research records upon request.

What if I choose to not take part or leave the Study?

- Taking part in the study is voluntary.
- If you choose not to be in this study, it will not affect your current or future relations with the University.
- You are free to quit at any time, for whatever reason.
- You will not be penalized or lose benefits if you stop taking part in the study.

- During the research process, you will be notified of any new findings from the research that may make you decide that you want to stop being in the study.

Will I be asked to leave the Study?

- We ask that you follow directions the best you can.
- If you are unable to do so, or the sponsor cancels the study, you may be asked to leave.

Who can I contact if I have any questions?

- The researchers conducting this study are Ian Kelly-Principal Investigator (PI), Andrew Berrios, Bobbie Finocchio, Marice Edouard-Vincent, and Tracy Curley. For questions or more information concerning this research you may contact Ian Kelly, Principal Investigator, at 774-292-6857 or ian23505@gmail.com.
- If you believe you may have suffered a research related injury, contact Rebecca Lowenhaupt at Rebecca.lowenhaupt@bc.edu who will give you further instructions.
- If you have any questions about your rights as a person in this research study, you may contact: Director, Office for Research Protections, Boston College at (617) 552-4778, or irb@bc.edu

Will I get a copy of this consent form?

- You will be given a copy of this form to keep for your records and future reference.

Statement of Consent:

- I have read (or have had read to me) the contents of this consent form.
- I have been encouraged to ask questions.
- I have received answers to my questions.
- I give my consent to be in this study.
- I have received (or will receive) a copy of this form.

Signatures/Dates:

Study Participant (Print Name): Date _____

Participant or Legal Representative Signature : Date _____